THE UNIVERSITY OF QUEENSLAND

AUSTRALIA

The influence of cultural values on the environmental attitudes and behaviours of Chinese outbound tourists

JIE (Olivia) REN

Bachelor in International Business

Master in International Business

A thesis submitted for the degree of Doctor of Philosophy at

The University of Queensland in 2018

Business School

Abstract

The rapid growth of the Chinese outbound tourism market is likely to significantly influence the environmental sustainability of destinations. It is therefore critical to understand the factors that influence the environmental behaviours of Chinese outbound travellers. A considerable amount of research has documented the influence of values on attitudes and behaviours in a variety of research contexts. However, very few studies have considered the unique cultural values of Chinese travellers and how these influence Chinese visitors' attitudes and behaviours.

The purpose of the present research is to understand the influence of Chinese cultural values on outbound tourists' environmental attitudes, environmentally sustainable behaviours and nature-based activity participation using a value-attitude-behaviours (VAB) framework. A three-phase research design was adopted to explore the major cultural value dimensions that influence the environmental attitudes and behaviours of outbound Chinese travellers. In the first phase, several Chinese cultural value scales were evaluated to select the most valid and reliable scale for use in sustainable tourism contexts. Following this, an onsite study was designed to explore the causal relationships among values, attitudes and behaviours at a popular island destination in Queensland, Australia. Environmental attitudes were measured using a Chinese-version revised NEP scale. Participation in pro-environmental behaviours such as saving water and nature-based activities such as dolphin feeding on the island were measured. In the third phase, an online study was conducted to further test the value-attitude-behaviour framework with a larger and more diverse sample of Chinese travellers.

The key dimensions of the value scale used in the second phase study were *self-cultivation* (e.g., knowledge and education), *complacency* (e.g., non-competitiveness), *enjoyment* (e.g., leisure) and *self-interest* (e.g., fame and fortune). Pro-environmental behaviours fell into two categories (convenient behaviours and inconvenient behaviours), which were broadly related to the level of effort required by travellers. The findings revealed that the Chinese cultural value of *self-cultivation* had a positive and significant influence on the environmental attitudes and behaviours of Chinese outbound tourists. On the other hand, *self-interest* had a significant negative impact on

environmental attitudes as well as environmentally responsible behaviours. Tourists who valued *complacency* were less likely to engage in convenient pro-environmental actions, while those who valued *enjoyment* were more likely to engage in inconvenient pro-environmental behaviours. In addition to the significant influence of values on attitudes and behaviours, the findings also revealed that positive environmental attitudes were associated with environmentally responsible behaviours.

The research makes several theoretical and practical contributions to existing knowledge. Theoretically, the research adds to our current understanding of Chinese outbound tourists' environmental attitudes and behaviours by considering the important role of cultural values. Methodologically, the research validates four distinctive Chinese cultural value scales and identifies the most useful scale for tourism contexts. Practically, the research contributes to the design of management strategies that can enhance travellers' connections with the environment. Some managerial strategies were recommended to target following Chinese cultural values, *sense of obligation, harmony, knowledge and education, fashion, ostentation, self-interest, complacency and conformity*. These strategies are important in assisting managers to reduce the potential negative environmental impacts caused by increasing numbers of Chinese visitors and to encourage environmentally responsible behaviours and participation in nature-based activities.

Declaration by author

This thesis *is composed of my original work and contains* no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

The content of my thesis is the result of work I have carried out since the commencement of my higher degree by research candidature and does not include a substantial part of work that has been submitted *to qualify for the award of any* other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

I acknowledge that an electronic copy of my thesis must be lodged with the University Library and, subject to the policy and procedures of The University of Queensland, the thesis be made available for research and study in accordance with the Copyright Act 1968 unless a period of embargo has been approved by the Dean of the Graduate School.

I acknowledge that copyright of all material contained in my thesis resides with the copyright holder(s) of that material. Where appropriate I have obtained copyright permission from the copyright holder to reproduce material in this thesis and have sought permission from co-authors for any jointly authored works included in the thesis.

Publications included in this thesis

No publications included.

Submitted manuscripts included in this thesis

No manuscripts submitted for publication

Other publications during candidature

No other publications

Contributions by others to the thesis

In their capacity as advisors to the candidate, Associate Professor Pierre Benckendorff and Dr Karen Hughes provided guidance and support throughout the candidature, including a detailed review of the confirmation document and final thesis. This thesis document was also read and advised on by Associate Professor Jan Packer during the first and second year of the candidature. Carl Smith edited the final draft document.

Statement of parts of the thesis submitted to qualify for the award of another degree

None.

Research Involving Human or Animal Subjects

Ethics approval (#126468) was granted by UQBS Ethical Review Committee.

A copy of the ethics approval letter and gatekeeper approval letter are included in the thesis appendix.

Financial support

No financial support was provided to fund this research

Acknowledgements

This research would never have come to fruition without the shared knowledge and support of several people. They helped me reach important milestones, brought me back when I lost track and encouraged me when I lost faith in myself.

I would like to express my eternal gratitude to my principal adviser, Associate Professor Pierre Benckendorff, who is an incredible scholar, mentor and teacher. His thoughtful and detailed comments, insight and guidance were invaluable throughout the past three years of my PhD study. Without his unflagging support and encouragement, I would not have completed this thesis. In addition to the extraordinary help in my academic research, he has always showed concern for his students' welfare and lives. His expertise and professionalism has helped me to develop better ideas, and his patience and commitment has helped me to understand and argue at my own pace. I am very lucky to have had his support in my research career.

I am also indebted to Dr Karen Hughes for being my associate adviser and teaching me to think practically. She encouraged me to think critically, motivated me to think 'out of the box' and provided me with directions that I had not considered before. Without her constructive feedback, support and guidance, my research journey would have been less smooth. She guided me to stay focused and made sure I was on track by constantly reminding me of my main research objectives. In addition to being an extraordinary academic adviser and mentor, she is also a caring supporter. She often reminds me to reward myself with a holiday to ease my stress. I thank her for her efforts in making me a better researcher and I am honoured to have her as my adviser.

I would also like to express my thanks to Associate Professor Jan Packer, who has provided me with assistance and feedback on my data collection and analysis. Without her help and recommendations, I would not have been able to form a relationship with Tangalooma Island Resort and my onsite data collection would not have proceeded so well. Her advice on methods of data analysis has been very helpful. I am so grateful to have received assistance from her.

I must also thank my fellow PhD students at UQ. Without their support and brainstorming, my PhD journey would have been very lonely. I am grateful to have met these amazing and talented colleagues along the journey. They are not only outstanding academic fellows in my research life; they are also good friends in my daily life who have brought me laughter and entertainment.

I would not be able to achieve this academic milestone without the endless love and support of my family. To my beloved husband, Arthur, I thank you for always having faith in me even when I lost faith in myself, entertaining me all the time, standing by my side no matter what. Thank you for your everlasting love, patience, understanding and inspiration. To my extraordinary parents, thank you for your foresight and selfless love. You have always been my source of motivation. To Harry and Dobby, thank you for always being by my side and bringing me comfort and joy. I really appreciate having you two in my life. To myself, I thank you for never giving up.

Keywords

Chinese cultural values, environmental responsible behaviours, sustainable tourism, value-attitude-behaviour model, Chinese outbound tourists, environmental psychology

Australian and New Zealand Standard Research Classifications (ANZSRC)

ANZSRC code: 150606 Tourist Behaviour and Visitor Experience, 80%

ANZSRC code: 150603 Tourism Management, 20%

Fields of Research (FoR) Classification

FoR code: 1506, Tourism, 100%

Dedication

To my husband, Arthur Ma,

who always encourages me to have faith in myself and gets me through the hard times.

To my parents,

who always been a source of emotional support and who keep telling me I am the best.

Table of Contents

List of Tables

List of Figures

List of Abbreviations used in the thesis

- EAs – Environmental attitudes
- ECS – Environmental Concern Scale
- NEP – the New Environmental Paradigm
- PEBs – Pro-environmental behaviours
- ORA – Outdoor Recreation Activities
- TPB – Theory of Planned Behaviour
- VBN – Value-Belief-Norm theory
- VAB – Value Attitude Behaviour theory
- SDB – Social Desirablity Bias

Chapter 1 Introduction

1.1 Introduction

This chapter provides an introduction and overview of the thesis. Section 1.2 introduces the research background to provide an overall understanding of the research context. The conceptual framework and the aims and objectives of the research are identified in section 1.3 and 1.4. Section 1.5 summarises the rationale for the research methods and research design that were employed for data collection. This is followed by a discussion of the theoretical, methodological and practical contributions of the research (section 1.6). An outline of the thesis is provided in section 1.7. Finally, the definition of the key terms and conclusions are presented in sections 1.8 and 1.9.

1.2 Research rationale

1.2.1 Sustainable tourism and China's outbound tourism

Tourism is one of the world's fastest growing industries and an important source of foreign exchange and employment (United Nations, 2015). Tourism that focuses on natural environments is a large and flourishing part of the global tourism industry. Although the development of tourism based on the natural environment contributes to socio-economic development and environmental protection, uncontrolled tourism growth can also cause environmental degradation and destruction of fragile ecosystems (United Nations, 2015).

Sustainable tourism has received significant attention in the past few decades. The growth of tourism and an increase in the number of visitors can impact negatively on the natural environment and attractiveness of destinations, potentially leading to a reduction in tourism demand. Consequently, the preservation of natural resources and environment are important. On a global level, sustainable tourism development has become an increasingly important strategic goal for world-class destinations (Feng, Chen, Heck, & Miao, 2014; Maxim, 2016; Miller, Merrilees, & Coghlan, 2015; Scott & Cooper, 2010).

As the largest generator of outbound tourists, China's impact on the tourism market and world-class destinations cannot be ignored (United Nations World Tourism Organization, 2017). Along with the United States, Germany and the United Kingdom, China has led global outbound tourism since 2004, as a result of strengthening economic conditions (United Nations World Tourism Organization, 2017). According to United Nations World Tourism Organization (2013) and United

Nations World Tourism Organization (2017), the number of Chinese outbound trips has grown from 34.5 million in 2006 to 135 million in 2016. Expenditure by Chinese outbound travellers increased by 12% between 2015 and 2016, reaching US$261 billion. Figure 1.1 shows the growth of China's outbound tourism volume from 2000 to 2016.

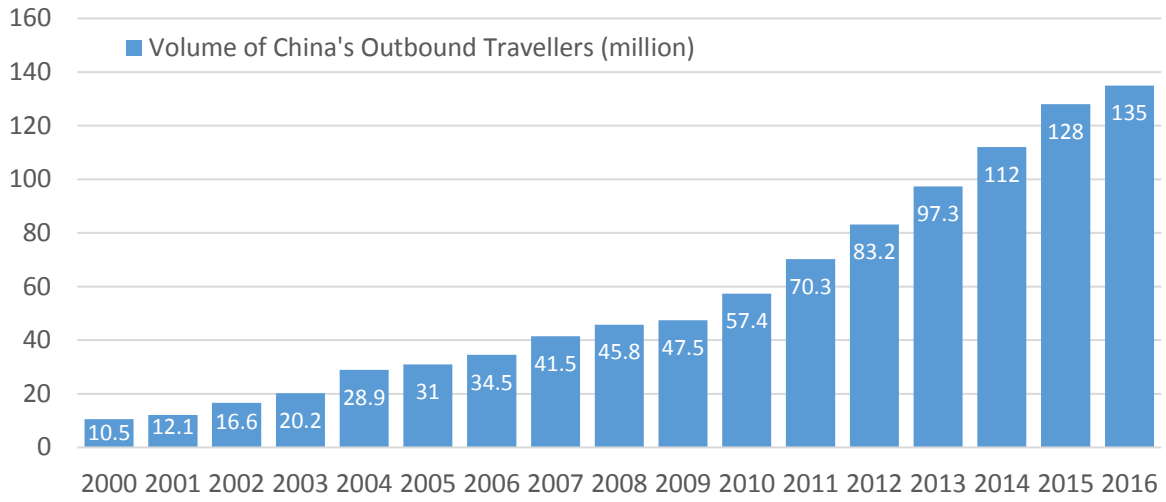

Figure 1.1 Volume of China's Outbound Travellers (million) (Source: United Nations World Tourism Organization, 2013, 2017)

With the growth of income and relaxation of policies restricting travel, the destination preferences of Chinese tourists have gradually expanded from domestic and short-haul Asian destinations to long-haul international destinations. As can be seen in Figure 1.1, the growth in China's outbound tourism over the last decade has been dramatic and it has been argued that the market still has tremendous growth potential (United Nations World Tourism Organization, 2017).

1.2.2 The links between values, attitudes and behaviour

Cultural values, which do not change with situations, influence attitudes and in turn influence behaviours. As an Eastern society, China has its own unique social and cultural values, beliefs, norms and characteristics (Lin & Lu Wang, 2010). Although the Chinese value system may appear similar to those of other societies, it possesses unique characteristics such as conflict, confusion and change (Lin & Lu Wang, 2010). Traditional Chinese culture is described as a complex amalgam of value systems informed by Confucianism, Daoism and Buddhism (Faure & Fang, 2008; Zhang, Chebat, & Zourrig, 2012), especially those Chinese cultural values related to nature and the environment (Jenkins, 2002).

As one of the most representative characteristics of culture, Chinese cultural values play an important role in determining behaviour (Gao, Huang, & Brown, 2017). Although significant differences exist between Chinese cultural values and Western values, very few studies have investigated the influence of Chinese cultural values on the attitudes and behaviours of Chinese travellers. Exploring the influence of Chinese cultural values on the attitudes and behaviours of tourists is likely to provide further insights into this emerging market. To explore the relationship between values and behaviour in natural environments, four Chinese cultural value scales were discussed, tested and applied in the present study.

The Value-Attitude-Behaviour model was adapted and applied in the present study. Value-attitude-behaviour (VAB) theory proposes a hierarchical influence of cognition where the flow is from values to attitudes and on to specific behaviours (Homer & Kahle, 1988). The model has been tested and applied in several contexts, including consumer behaviour and environmental psychology. Very few studies have applied this model to tourism research contexts and the model has been given very little attention beyond Western contexts. To fill this gap, the causal relationships between the values, attitudes and behaviours of Chinese outbound tourists in sustainable tourism context were empirically tested. The framework in the present study proposes that Chinese cultural values influence Chinese tourists' environmental attitudes, which in turn influence two types of behaviours (i.e., pro-environmental behaviours and nature-based activity participation).

1.2.3 Environmental behaviour

The planet has a finite number of natural resources, therefore limiting humans' use of these resources is important for ensuring the long-term viability of the planet. China has a large population and the increasing number of Chinese outbound tourists could impact negatively on the destination's environment (e.g., litter and waste). To tackle these problems, it is crucial to explore what influences Chinese people's environmental attitudes and behaviours. The growing number of Chinese outbound tourists provides an opportunity to study this in both urban and natural environments.

The growth of the Chinese market and the increasing popularity of nature-based activities has attracted the interest of several researchers who have investigated Chinese travellers' awareness of and attitudes towards environmental protection. Packer, Ballantyne, and Hughes (2014) found that Chinese tourists had a greater sense of connection with nature and more awareness of and concern

for environmental issues than Australian tourists. Moreover, Harris (2008) reported that Chinese people advocate for the protection of the environment and are willing to take action on this issue. However, it is commonly agreed that environmental concerns, positive attitude and willingness to engage in pro-environmental behaviours do not necessarily translate into pro-environmental behaviours, especially for Chinese people (Harris, 2008). This highlights the importance of investigating the actual pro-environmental behaviours of travellers, rather than focusing only on attitudes and willingness to protect the environment. Previous research on environmental behaviour has tended to focus on behavioural intentions rather than actual or past behaviour (Chou & Chen, 2014; Goodwin & Francis, 2003; Hedlund, 2011; Kang, Stein, Heo, & Lee, 2012). It is widely acknowledged that behavioural intentions do not always lead to actual behaviour (Hughes, 2013). To address this, the present study investigated the actual self-reported pro-environmental behaviours of Chinese tourists.

1.2.4 Nature-based activity preferences

In addition to sustainable tourist behaviour, experiencing natural areas (i.e., participating in nature-based activities) is another key component of environmentally sustainable tourism (Weaver, 2005; Weaver & Lawton, 2007). Several previous studies have investigated the attitudes and preferences of Chinese tourists in relation to nature, outdoor activities and animals. Researchers have reported that Chinese tourists may feel uncomfortable or scared going into the water at a surf beach (Gardiner & Scott, 2014) and have a dislike for or fear of wild animals (Packer et al., 2014). However, an extensive search of the literature has failed to reveal any studies that have explored how values and attitudes influence nature-based activity participation (e.g., bird viewing, dolphin feeding, fishing, eco walking etc.). To provide a complete view of sustainable tourist behaviour and underlying attitude and value determinants, the present study examined both Chinese tourists' pro-environmental behaviours and nature-based activity participation.

In summary, the key research problems are:

1. There is a lack of knowledge about the environmental behaviours of Chinese tourists and the antecedents of these behaviours.
2. While an increasing number of studies emphasise the influence of values on tourist behaviour, there is a lack of consensus on the use of a value system that is designed specifically for Chinese cultural values.
3. Environmental attitudes frameworks are well established and have been applied to Western

populations but have rarely been used to study Chinese populations.

4. Previous research on the pro-environmental behaviours of tourists has not included nature-based activity participation.
5. Previous research on the pro-environmental behaviours of tourists has focused on testing behavioural intentions rather than actual self-reported behaviours.
6. Although the Value-Attitude-Behaviour framework is well established in environmental psychology contexts, it is rarely applied in a sustainable tourism context and especially is not focused on Chinese visitors.

To conclude, the growth of the Chinese market is notable and has resulted in a growing interest in Chinese outbound tourists' potential impacts on the environment. Researchers need to consider the long-term environmental impacts of growing numbers of tourists, some of whom who may think and behave in very different ways. Chinese may hold different environmental attitudes and behaviour to previous tourist groups. These attitudes and behaviour are grounded in their values; therefore, it is imperative to develop methods of measuring values, so we can design experiences and interpretive messages that connect with tourists' values and positively influence their environmental attitudes and behaviour.

1.3 Conceptual framework

The purpose of this thesis is to examine the links between the values, attitudes and environmental behaviours of Chinese outbound visitors. The conceptual framework shown in Figure 1.2 was designed to address the research gaps identified in the previous section.

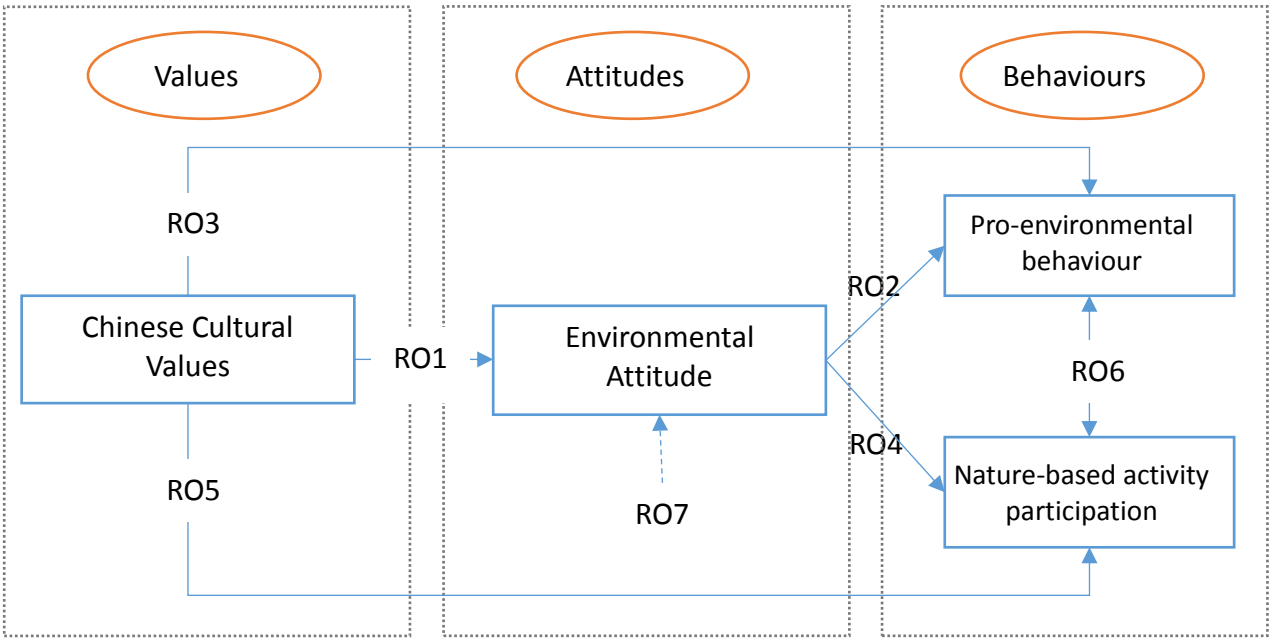

Figure 1.2 The conceptual framework of this study

As can be seen from Figure 1.2, the conceptual framework is based on Value-Attitude-Behaviour theory (Homer & Kahle, 1988) . The proposed framework concentrates on Chinese cultural values rather than the value scales widely used in the Western literature. Moreover, unlike most previous research, both pro-environmental behaviours and nature-based activity participation were examined in this research. Several pro-environmental behaviours and nature-based activity preferences were measured to provide a more comprehensive assessment of behaviours.

1.4 Research aims and objectives

To address the gaps identified in the literature, the purpose of this study is to test an integrated conceptual model based on a VAB framework to explain how Chinese cultural values influence the environmental attitudes and behaviours of outbound Chinese travellers. The study was divided into two phases according to different research objectives.

The research objectives of the two phases are to test the relationships between:

- **RO1:** Chinese Cultural Values and the environmental attitudes of Chinese tourists.
- **RO2:** Environmental attitudes and the pro-environmental behaviours of Chinese tourists.
- **RO3:** Chinese Cultural Values and the pro-environmental behaviours of Chinese tourists
- **RO4:** Environmental attitudes and Chinese tourists' nature-based activity participation
- **RO5:** Chinese Cultural Values and Chinese tourists' nature-based activity participation.
- **RO6**: Pro-environmental behaviours and Chinese tourists' nature-based activity participation.

and to

- **RO7**: Explore whether environmental attitudes mediate the relationship between Chinese Cultural Values and environmental behaviours.

1.5 Overview of methodology

An overview of the research design and process is presented in Figure 1.3.

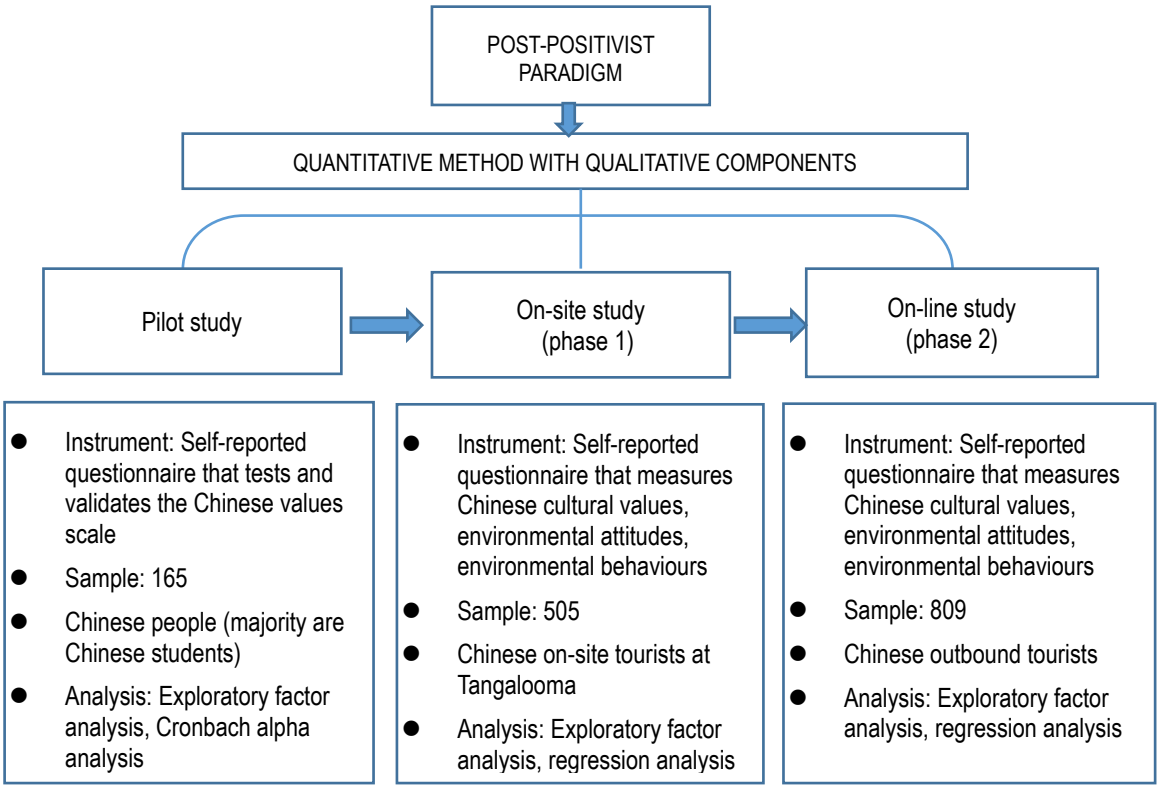

Figure 1.3 Research design and process

The research is grounded in a post-positivist research paradigm. The post-positivist paradigm, which has been used primarily in scientific research, is a critique and amendment of the positivist view (Creswell, 2014). In line with the research objectives, a quantitative research method combined with a qualitative component was employed in this study. A pilot study combined with two-phase data collection process consisting of onsite data collection and online collection was used.

For the pilot study of the research, a self-reported questionnaire was used to test the suitability of several existing scales for use in a tourism context. The aim of the scale evaluation survey was to test these measurement scales to improve internal validity and reliability. A self-reported questionnaire in both Chinese and English consisting of four parts was used to collect the data for scale evaluation analysis. A convenience sampling technique was used to recruit university students from a range of nationalities as participants in this phase of the study. As a supplementation, participants from other occupations were recruited as well. A total of 165 valid questionnaires were returned. For the data analysis, descriptive statistics, Cronbach alpha analysis, and Exploratory Factor Analysis (EFA) were conducted.

The onsite phase (phase 1) of the research was conducted at Tangalooma Island Resort on Moreton Island, Australia. The resort is one of the major nature-based tourism destinations for Chinese tourists in Queensland and offers a range of nature-based activities. The questionnaire for the on-site data collection was developed based on the results of the scale evaluation study. A bilingual panel approach was used to translate the questionnaire into Chinese. After this, two pilot studies were conducted, one with a PhD focus group and one on-site. The aim of these pilot studies was to check the format and the layout of the questionnaire as well as to enhance its face validity. Finally, the questionnaire was administered to guests staying at Tangalooma Island Resort. Participants were Chinese group tourists who stayed at least one night at the resort during the data collection period. The questionnaire was collected on the return ferry from Moreton Island to the wharf (after participants' stay). A total of 505 valid questionnaires were returned.

The online phase (phase 2) of the study was conducted using a Chinese online survey panel. The questionnaire for the online survey was similar to the onsite survey, but minor adjustments were made to items measuring pro-environmental behaviours and nature-based activities participation. A pilot study was conducted with two PhD advisors and a group of PhD students before the online questionnaire was distributed. Participants in the third phase were Chinese people who had travelled overseas during the past 12 months. A total of 809 valid questionnaires were completed.

In terms of data analysis, exploratory factor analysis was conducted to test the validity and reliability of measurement model. Regression analysis was performed to explore the relationships between Chinese cultural values, environmental attitudes and behaviours (i.e., pro-environmental behaviours and nature-based activity participation).

1.6 Research significance

This study has been designed to address a number of gaps and opportunities in the current literature and aimed to improve our understanding of how cultural values influence the environmental behaviours of outbound Chinese tourists. The study makes a number of theoretical, methodological and practical contributions to the areas of sustainable tourism, tourist behaviour and environmental psychology.

The study makes three theoretical contributions. Firstly, the study proposes an integrated framework based on Value-Attitude-Behaviour theory. This framework contributes to the understanding of how Chinese cultural values influence environmental attitudes, which in turn influence the behaviours of outbound Chinese travellers. The application of value-attitude-behaviour theory provides a basic framework for the causal relationships among values, attitudes and behaviours. Although VAB theory has been used widely in the environmental psychology literature, it is rarely applied in tourism contexts to examine the relationships between values and environmental behaviours. Secondly, the research contributes to the environmental psychology literature by extending the many studies conducted on pro-environmental behaviours in home and work settings to a travel context. Thirdly, the study makes a significant theoretical contribution by extending the VAB model through the addition of a new variable (nature-based activity participation). The addition of this new variable enhances the traditional value-attitude-behaviour model and makes it more useful for sustainable tourism research contexts.

This study is also valuable in terms of the measurement of Chinese Cultural Values in tourism research. There are a number of widely used value measurements, such as Rokeach's Value Survey (Rokeach, 1973), List of Values (Kahle, Beatty, & Homer, 1986), Hofstede's cultural values (Hofstede, 1984) and Schwartz's Value Theory (Schwartz, 1994). However, some of these value dimensions are 'universal' values developed for comparing cultural differences. These dimensions become meaningless if studies are not concerned with comparing two or more cultures. Although the value systems designed by Hofstede and Schwartz capture so-called 'universal values' that are common across many cultures, they fail to consider specific Chinese cultural values. Although some scholars have tried to develop Chinese cultural value scales (Chinese Culture Connection, 1987;

Yau, 1988; Zhang, 2005b), these scales have not been tested in a tourism research domain. The present study makes a methodological contribution by testing and selecting the most valid and reliable Chinese value scale for use in sustainable tourism contexts.

The findings of this research also offer some practical contributions. Animal feeding, interpretation, and eco learning are examples of commonly used management strategies in Western contexts (Australia Zoo, 2018; Tangalooma Island Resort, 2018). However, these strategies were designed for Western tourists and there other activities that are more compatible with Chinese tourists' values and attitudes. This study identified Chinese tourists' attitudes and behaviours in relation to the environment, nature and wildlife, as well as their underlying cultural values. The results of this study provide valuable practical insights for those responsible for tourism marketing and sustainable development. From an environmental protection perspective, the findings of this study provide insights into the types of information, experiences and messages that could be used by interpreters to help connect and engage Chinese tourists with environmental and conservation issues. From a nature-based activity participation perspective, the findings of Chinese tourists' participation in nature-based activities and their attitudes toward nature and environment offer valuable guidance for advertising and destination promotion. Findings of this research may contribute to the effective design of sustainable tourism experiences and activities for Chinese travellers. A more diverse range of value-based activities are recommended in the current research, such as arousing visitor's connection with nature (i.e., appealing to values of harmony), strengthening the link between conservation behaviours and upscale life style (i.e., for tourists who value fashion), making use of reward mechanisms (i.e., targeting ostentation values), and encouraging visitors to conform with others' positive environmental behaviours (i.e., appealing to those who value conformity).

1.7 Thesis structure

This thesis consists of five chapters. *Chapter 1* introduces the background of the research, the main research questions and the research gaps. Following this, the contribution of the current research, including its theoretical, methodological and practical contributions, are provided. *Chapter 2* draws on extant literature from environmentally sustainable tourism and environmental psychology to explore the key variables—values, attitudes and behaviours. Next, the relevant theories and models which help to understand the environmental behaviours and determinants of those behaviours will be discussed. Research themes and gaps are highlighted with a proposed conceptual framework and research objectives. *Chapter 3* provides a detailed overview of the research methodology adopted for this study, including research strategy, research design and data collection methods. *Chapter 4*

presents the results of the onsite and online studies. *Chapter 5* discusses the results in relation to each of the research objectives and in light of relevant prior research and theories. Additionally, the theoretical, methodological and practical contributions of the study are summarised. Finally, the limitations of the research and suggestions for further research and concluding comments are provided at the end of the thesis.

1.8 Definitions of key concepts

This section provides a summary of key terms and concepts in the current research.

- **Sustainable tourism:** "Sustainable tourism means tourism at any scale with practical and proactive design, engineering and management to reduce environmental impacts" (Buckley, 2002, p. 184).
- **Nature-based tourism:** "responsible travel to natural areas, which conserves the environment and improves the welfare of local people" (Texas Parks & Wildlife, 2015, p. 1).
- **Outbound tourism:** Outbound tourism refers to "the departures of resident visitors outside the economic territory of the country of reference." (Organisation for Economic Co-operation and Development, 2008, p. 3).
- **Values:** "Values are an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973, p. 5).
- **Cultural values:** Cultural values refer to an entire culture's mind-set and the understanding shared by most members of a society and how these influence the attitudes and behaviours of a society (Mothersbaugh, Best, & Hawkins, 2007) .
- **Environmental attitudes:** "Psychological tendency that is expressed by evaluating perceptions of, or beliefs regarding the natural environment, including factors affecting its quality, with some degree of favour or disfavour" (Milfont & Duckitt, 2010, p. 80).
- **Pro-environmental behaviours (PEBs):** Pro-environmental behaviours have been defined by Steg and Vlek (2009, p. 309) as, "behaviours that harm the environment as little as possible, or even benefit the environment."
- **Outdoor Recreation Activities (ORA):** "Activities that people undertake out-of-doors in places where they can access nature or green areas, mainly as part of their daily or weekend routines" (Bell, Tyrväinen, Sievänen, Pröbstl, & Simpson, 2007, p. 6).

- **Theory of Planned Behaviour (TPB):** The theory suggests that behaviour is primarily guided by three beliefs: behavioural belief (individual's evaluation of the likely outcomes of the behaviour), normative belief (importance of social referents' attitudes toward the behaviour) and control beliefs (presence and control of factors that may motivate/impede the performance of the behaviour) (Ajzen, 1985; Curtis, Ham, & Weiler, 2010; Lee, 2009; Perugini & Bagozzi, 2001).
- **Value-Belief-Norm theory (VBN):** The theory proposes a chain model where "pro-environmental behaviours stem from acceptance of particular personal values, from beliefs that things important to those values are under threat and from beliefs that actions initiated by the individual can help alleviate the threat and restore the values" (Oreg & Katz-Gerro, 2006, p. 464). The chain model directly links the five variables that are antecedents of environmental behaviours; namely, values, ecological worldview, adverse consequences for valued objects, perceived ability to reduce the threat and personal norms (Stern, 2000b).
- **Value Attitude Behaviour theory (VAB):** The model integrates the interrelationships between values, attitudes and behaviours by proposing a hierarchical influence of cognitions in which the influences theoretically flow from more abstract cognitions (i.e., values) to mid-range cognitions (i.e., attitudes) to specific behaviours (Homer & Kahle, 1988).

1.9 Conclusion

This chapter has introduced the rationale and outline of the present research. The methodology of this study was briefly presented, followed by an overview of the significance of the work. Additionally, an outline of research questions and objectives and an outline of the entire thesis document and key terms were presented.

Chapter 2 Literature Review

2.1 Introduction

The purpose of this thesis is to examine the links between the values, attitudes and environmental behaviours of Chinese outbound tourists. In particular, the thesis is concerned with pro-environmental behaviours and preferences for nature-based activities. The intention of this chapter is to critically review the existing literature related to these topics. According to Jennings (2010), a literature review serves four aims: (1) to integrate and summarise what is already known, (2) to learn from others and to stimulate new ideas, (3) to introduce and to discuss prior research and (4) to demonstrate familiarity with a body of knowledge. This literature review addresses these aims by organising the relevant literature into five sections. The structure of this Literature Review Chapter is presented in Figure 2.1.

Firstly, the definition and worldwide growth of environmentally sustainable development are discussed, along with an overview of previous research on environmentally sustainable tourism (section 2.2). Secondly, the definition and dimensions of outbound tourism are discussed, along with an overview of Chinese outbound tourism market and the growth of outbound tourism in China (section 2.3). Thirdly, as the present study focuses on values, attitudes and behaviours, the role of values is discussed in detail, including definition, measurement and the relationship between values and environmental behaviours. A critique of Chinese cultural values and Western values measurements is also provided and existing literature on the influence of Chinese cultural values on tourist behaviours is examined (section 2.4). Fourthly, environmental attitudes are discussed. The influence of values on environmental attitudes is explored and measurement issues highlighted (section 2.5). Fifthly, a review of environmental behaviours is provided. This discussion examines two types of environmental behaviours: pro-environmental behaviours and nature-based activity participation. Evidence of the influence of environmental attitudes on these two behaviours is investigated (section 2.6). Finally, to provide a better understanding of how psychological factors influence environmental behaviours, three theoretical models are discussed (section 2.7). Value-Attitude-Behaviour (VAB) theory is introduced as a suitable framework for explaining how values influence environmental attitudes, which in turn influence environmental behaviours. The key themes and gaps, as well as the conceptual framework and research objectives of this thesis are presented in section 2.8 and section 2.9 respectively.

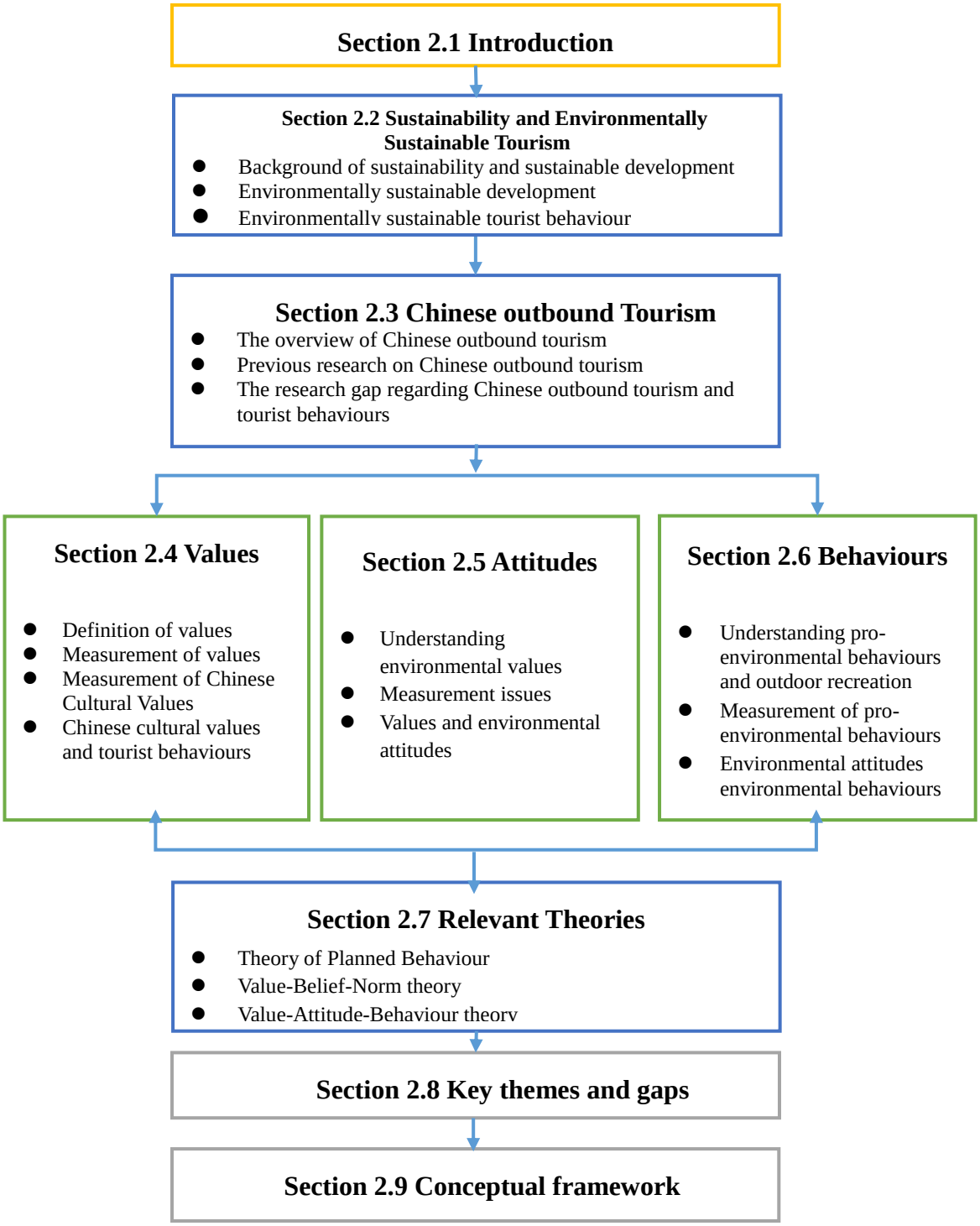

Figure 2.1 Outline of the literature review

2.2 Sustainability and Environmentally Sustainable Tourism

This section begins with a general discussion of sustainability and sustainable development. This is followed by a review of environmentally sustainable development, then previous research on environmentally sustainable tourism.

2.2.1 Background of sustainability and sustainable development

The concept of sustainable development has its roots in a 1987 report produced by the World Commission on Environment and Development (WCED). The WCED released a report entitled 'Our Common Future', commonly known as the Brundtland Report. The report addressed the conflicts between environmental and development goals and introduced the concept of sustainability and sustainable development onto the global stage. In this early work, sustainable development was defined as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987, p. 8). By extension, sustainability is an ongoing process which requires effort to be made across different organisations—government, non-profit and for-profit entities. Rather than a short-term goal, sustainability and sustainable development are concerned with achieving long-term balance between human and non-human resources (Mitra, 2017).

In order to operationalise the principles of sustainability, Barbier (1987) proposed that sustainable development is an intersection of the goals related to three interlinked systems:

1. *Economic system:* An economic system must maintain economic production and growth. As human needs are basic and essential, the system must be able to produce goods and services on a continuing basis. Extreme sectoral imbalances which damage agricultural or industrial production must be avoided. Achieving economic sustainable development goals, manufactured capital, natural capital, human capital and social capital must be maintained.
2. *Social system:* A social system must achieve social justice—equity and fairness in distribution and opportunity are key requirements. Adequate provision of social services must be maintained to ensure the fulfilment of basic health and educational needs, gender equity and participatory democracy.
3. *Environmental (or ecological) system:* An environmentally sustainable system must maintain intergenerational equity with respect to the natural resources of the planet. To reach this goal, over-exploitation of renewable resources systems and damage to environmental sink functions

must be avoided. Biodiversity, atmospheric stability and other ecosystem functions must be protected and maintained. According to Harris (2003), human population and use of natural resources must be controlled and limited in scale in order to maintain the integrity of ecosystems and diversity of species. Thus, institutions should take the environment into consideration in their policies and practices.

Each sustainable system has its own set of multidimensional goals. However, in the real world, trade-offs are often made between one system of sustainability and another. For example, rapid economic expansion may generate environmental degradation that threatens biodiversity and comes at the cost of declines in achieving social goals. It is hard to avoid trade-offs and often only one objective can be maximised at a time (Barbier & Burgess, 2017; Harris, 2003). Consequently, sustainable development involves a long-term process of trade-offs and balancing among several goals within the three intersecting systems.

Among all three dimensions of sustainability, the environmental pillar often gets the most attention when it comes to sustainability (Miller et al., 2015; O'Connor & Gronewold, 2013; Vries, Terwel, Ellemers, & Daamen, 2015).

2.2.2 Environmentally sustainable development

Environmental sustainability has been examined in a range of contexts and industries, including tourism. Key lines of inquiry have focused on policy and planning, strategic initiatives (strategies and goals) and environmentally responsible behaviour.

Policy and planning

Some organisations and governments have launched relevant policies and plans which aim to support local and global environmentally sustainable development and reduce the effects on the natural environment. For instance, in Australia, The Queensland Government (2013) launched a 'Queensland Ecotourism Plan' whose core value is to ensure that the delivery of ecotourism experiences contributes to the conservation of natural resources and cultural heritage in Queensland. The United Nations Enviornment Programme (2016) launched a green tourism campaign called 'Green Passport Rio 2016'. The campaign aimed to reduce visitors' harm to Brazil's environment by providing easy-to-follow environmentally friendly itineraries.

Strategies and goals

Some sustainable development strategies and goals were proposed. The two most ambitious programs were the United Nations Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs). The MDGs focused on a series of important social priorities worldwide and expressed public concern about poverty, hunger, disease, unmet schooling, gender inequality and environmental degradation. Similarly, the SDGs, also known as the global goals, were a universal call to end poverty, protect the environment and ensure prosperity for all people (United Nations Development Programme, 2018). In addition, other researchers have also proposed long term environmental sustainability goals. Hackett (2010) proposed three provisional environmentally sustainable development policies for 2030: 1) water resources management should aim to provide universal access to clean water and basic sanitation; 2) universal clean energy accessibility should be improved to minimise local pollution, reduce health impacts and mitigate global warming; and 3) biodiversity and ecosystem services should be maintained through better conservation and management.

Environmental sustainability has also been discussed in the tourism literature. Researchers have examined sustainable tourism strategies and principles aimed at promoting and marketing urban green tourism. Peeters and Schouten (2006) explored the ecological footprint of inbound tourism in Amsterdam. The impacts of several elements, such as accommodation, activities and transport were studied. This research showed that the ecological footprint of visitors in Amsterdam could be reduced by switching marketing efforts from long-haul markets to short-haul markets. Additionally, it was concluded that reducing the ecological footprint in tourism destinations can help to increase sustainability and reduce not only local but also global impacts (Peeters & Schouten, 2006).

Environmentally responsible behaviour

In addition to policies and strategic initiatives proposed by organisations, some researchers have examined the environmentally sustainable behaviours of individuals. The study of individuals' environmental behaviours (e.g., recycling, water conservation and car use) has received significant attention worldwide. For example, Chi, Wang, and Reuter (2014) investigated waste and recycling behaviours in Taizhou, China. Regarding sustainable transportation behaviour, Jakovcevic and Steg (2013) examined factors influencing intentions to reduce car use in Latin America. Findings indicated that individual values, beliefs and norms significantly influenced their intention to reduce car use to achieve environmentally sustainable goals. Dolnicar, Hurlimann, and Grün (2012) found that two key factors (i.e., high level of pro-environmental behaviour and pro-actively seeking out

water-saving information) were significant predictors of self-reported water conservation behaviour in Australia.

Although individuals' environmentally sustainable behaviours have been widely examined, much of the literature has focused on sustainability behaviours in everyday living. Consumer behaviour and sustainability research is not as well developed in tourism and only a few studies have looked at sustainability behaviours when people are on holidays (e.g., Miller et al., 2015; Warren & Coghlan, 2016).

2.2.3 Environmentally sustainable tourist behaviour

With the development of tourism, sustainable tourism has become an important part of global sustainable development (Feng et al., 2014). Within sustainable tourism contexts, environmentally sustainable tourism has become a popular focus. It is widely believed that the development of sustainable tourism can contribute towards a balance between the different interests of stakeholders in tourism activities and help to protect the environment of the tourism destination (Testoni, 2001; United Nations World Tourism Organization, 2007). Hence, research about environmentally sustainable tourism could improve the overall efficiency of tourism whilst also optimising the ecological services related to tourism (Feng et al., 2014).

Although the pillars of sustainable tourism include economic development, social development and environmental protection, this thesis is concerned only with sustainable tourism from an environmental sustainability perspective. Environmentally sustainable tourism can be defined as "making optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity (United Nations Environment Programme, 2005, p. 11)."

Environmentally sustainable tourism research has played an important role in understanding visitors' ecological behaviours and developing sustainable solutions in destinations (e.g., Ballantyne, Packer, & Falk, 2011; Ballantyne, Packer, & Hughes, 2009; Brown, Ham, & Hughes, 2010; Cheng, Zhang, Lu, Xu, & Zhang, 2011; Moore & Polley, 2007; Packer et al., 2014; van Riper & Kyle, 2014). Perhaps because of the rapid growth of environmentally sustainable tourism, nature-based tourism has become a popular focus of research. As noted by Buckley, Pickering, and Weaver (2003), nature-based tourism research includes studies on national park tourism, (Brown et al., 2010; Cheng et al., 2011; Moore & Polley, 2007; van Riper & Kyle, 2014), wildlife tourism

(Bagstad & Wiederholt, 2013; Ballantyne et al., 2011; Ballantyne et al., 2009; Lackey, 2003; Packer et al., 2014), marine tourism (Wynveen, Wynveen, & Sutton, 2015; Zeppel, 2012) and heritage tourism (Uriely, Israeli, & Reichel, 2002; Zhang, Zhang, Zhang, & Cheng, 2014).

Compared with nature-based contexts, sustainable tourism in urban contexts has received relatively little attention. Most studies focus on exploring sustainable tourism at a nature-centric level, such as ecotourism and nature-based tourism. Nevertheless, since urban areas tend to attract large numbers of visitors, it is important to understand the environmentally sustainable behaviours of visitors to urban areas (Miller et al., 2015). Research is now starting to shift the debate on sustainable tourism destinations from an emphasis on nature-based and ecotourism to urban tourism destinations. A small number of researchers have investigated tourists' environmental behaviours in urban environments (e.g., Dodds & Joppe, 2001; Gibson, Dodds, Joppe, & Jamieson, 2003; Kiatkawsin & Han, 2017; Maxim, 2015, 2016; Miller et al., 2015; Peeters & Schouten, 2006; Scott & Cooper, 2010).

Research regarding environmentally sustainable tourist behaviours, in both nature-based and urban destinations, can be categorised into the following key areas: (i) tourists' attitudes toward nature and the environment (e.g., Grybovych, Cela, Inui, & Lankford, 2005; Luo & Deng, 2007; Packer et al., 2014), (ii) antecedents of tourists' behaviours (e.g., Hedlund, 2011), (iii) tourists' pro-environmental behaviours (Maxim, 2015; Miller et al., 2015) and (iv) the relationship between tourists' attitudes and behaviours (Lee & Jan, 2015).

Growing attention has been given to sustainable development of tourism destination countries worldwide, but consumer behaviour and sustainability research is not as well developed in tourism context. The development of destination's sustainability and preservation of local environment are highly relevant to the interests of stakeholders in tourism activities and attractiveness of destinations. Understanding environmental behaviours of tourists is important for developing sustainable solutions in destinations. With growing pressure on natural resources worldwide, understanding tourists' environmental behaviours and the factors determining environmentally friendly behaviours has become an urgent priority.

2.3 Outbound tourism

This section begins with a general discussion of the Chinese outbound tourism market and its development. This is followed by a review of the previous research on Chinese outbound tourism. Finally, gaps in our knowledge and understanding of Chinese outbound tourists and their behaviours are identified.

2.3.1 The review of Chinese outbound tourism market

Outbound tourism refers to "the departures of resident visitors outside the economic territory of the country of reference." (Organisation for Economic Co-operation and Development, 2008, p. 3). As the largest generator of outbound tourists, China's impact on the tourism market and world-class destinations cannot be ignored (United Nations World Tourism Organization, 2017). Along with the United States, Germany and the United Kingdom, China has led global outbound tourism since 2004, as a result of strengthening economic conditions (United Nations World Tourism Organization, 2017). According to the United Nations World Tourism Organization (2013) and the United Nations World Tourism Organization (2017), the number of Chinese outbound trips have grown from 34.5 million in 2006 to 135 million in 2016. Expenditure by Chinese outbound travellers increased by 12% between 2015 and 2016, reaching US$261 billion. The CLSA Limited (2016) forecasts that Chinese outbound travel will reach 200 million trips by 2020.

The development of the Chinese outbound tourism market is reflected in three main aspects: 1) the Chinese market is immense, as China is the world's most populous country and the disposable income of Chinese residents has increased considerably, 2) the Chinese outbound tourism market has grown rapidly and is expected to continue to grow because of reduced travel restrictions (e.g., political liberation and transportation improvements) and 3) although packaged group tours are still the most common travel style, independent travel is expected to grow more strongly in the future (China Tourism Academy, 2016).

The growth of the Chinese outbound tourism market confirms that tourists from China are one of the most important outbound markets not only for the tourism industry but also for tourism research.

2.3.2 Previous research on Chinese outbound tourism

The scholarly literature on Chinese outbound tourism has mirrored the growth of this market. Extensive literature reviews have been devoted to Chinese outbound tourism (e.g., Andreu, Claver, & Quer, 2014; Huang & Hsu, 2005, 2008; Jin & Wang, 2016; Keating, Huang, Kriz, & Heung, 2015). The research regarding Chinese outbound tourism can be categorised into three key areas: (i) destination-related research, (ii) tourist-related research and (iii) economics, politics and policy-related research. Although the research regarding Chinese outbound tourism covers many diverse areas, this thesis is concerned only with tourist-related research and specifically Chinese outbound tourist behaviour.

Since being granted Approved Destination Status (ADS) by the Chinese government in 1999, Australia and New Zealand have become popular long distance outbound destinations for Chinese visitors. As a result, research has predominantly focused on understanding how these destinations appeal to Chinese tourists (e.g., Chow & Murphy, 2008; Huang & Gross, 2010; Packer et al., 2014; Wang & Davidson, 2010). In addition to examining tourists' perceptions of certain destinations, many studies have focused on the behaviour of Chinese tourists, including topics such as personal identity, travel motivations, cultural influence and behaviour.

As China has a unique cultural background that differs from Western culture, many researchers have focused on the specific cultural characteristics of Chinese travellers. Research regarding cultural elements has mainly focused on the traditional values and ethos of Chinese people (e.g., Arlt, 2006; Fu, Cai, & Lehto, 2015; Gao et al., 2017; Mok & DeFranco, 2000). In addition to culture-oriented research, the motivations of Chinese outbound tourists have received a great deal of research attention. Jiang, Scott, Ding, and Zou (2012) explored Chinese tourists' motivations to travel to Australia using means-end chain analysis. Two major travel motivation chains were found. First, Chinese tourists visit destinations which are 'famous' or have a 'good environment' because they value 'the beauty of nature' and 'pleasure'. Second, Chinese tourists visit 'different' destinations because they value 'experience' and 'knowledge'.

Along with culture- and motivation-related research, some research has investigated Chinese outbound tourists' behavioural intentions. Lam and Hsu (2004) investigated Chinese outbound tourists' travel intentions by using the Theory of Planned Behaviour (TPB). They found that attitudes, perceived behavioural control and past behaviours were related to respondents' choice of destination. Sparks and Pan (2009) also investigated potential Chinese outbound tourists' attitudes

in terms of their intentions to travel using TPB theory. Results indicated that 'social normative influences' and 'personal control constraints' were the most important factors influencing respondents' outbound travel intentions. Hsu and Huang (2012) expanded this research by adding the factors of motivation and actual behaviours to the TPB model. Their results indicated that the extended TPB model explained the behavioural intentions of Chinese visitors well. A discussion and justification of relevant behavioural models for the present study will be discussed further in section 2.7.

2.3.3 Research gaps

Research regarding Chinese outbound tourist behaviour can be categorised into the following key areas: tourist behaviour and behavioural intentions (e.g., destination choice) (e.g., Lam & Hsu, 2004; Sparks & Pan, 2009); antecedents of tourist behaviours (e.g., motivations) (e.g., Jiang et al., 2012; Lu, 2011); and cultural influences on behaviours (e.g., cultural values) (e.g., Fu et al., 2015; Gao et al., 2017). In addition to looking at outbound tourist behaviours, researchers are increasingly interested in identifying the underlying cultural values and attitudes leading to certain behaviours.

Deng, Walker, and Swinnerton (2006) suggested that future research was needed to examine the complex relationship between the values, attitudes and environmental behaviours of outbound Chinese tourists. Despite this call for further research, no subsequent studies seem to have pursued this research avenue. Following the recommendations of Deng et al. (2006), this thesis will examine the values, attitudes and behaviours of Chinese outbound travellers. The relationship between these socio-psychological factors and environmental behaviours has been explained by many theoretical frameworks, including the Theory of Planned Behaviour (TPB) (Ajzen, 1985), Value-Belief-Norm theory (VBT) (Schwartz, 1977) and Value-Attitude-Behaviour theory (VAB) (Homer & Kahle, 1988). A detailed discussion of these theories will be provided in section 2.7.

Chinese outbound tourism developments come at a time when increasing attention has also been given to Chinese outbound tourists in the general tourism literature; however, limited attention has been given to Chinese tourists in environmental sustainability contexts. With the development of Chinese outbound tourism, China has attracted worldwide attention with its rapid growth as a tourist-generating market (Li, Harrill, Uysal, Burnett, & Zhan, 2010; Ryan & Huimin, 2009). The Chinese outbound tourism market is important to most developed destinations, including Asian countries (Truong & King, 2009), Australia (Keating, 2009), Europe (Yang, Reeh, & Kreisel, 2011) and the United States (Li & Stepchenkova, 2012). Therefore, much of the attention is centred on

understanding the interests, desires and needs of Chinese outbound tourists and the Chinese tourist market in general (Li, Lai, Harrill, Kline, & Wang, 2011).

Chinese outbound tourists' values, attitudes and behaviours in relation to the environment and nature have been given very little attention in both Western research and Chinese research. Few researchers have investigated Chinese tourists' attitudes toward nature and environmental issues (e.g., Jie Li & Carr, 2004; Packer et al., 2014). Packer et al. (2014) surveyed tourists travelling to Tangalooma Island resort and found that Chinese tourists had a greater sense of connection with nature and more awareness of and concern for environmental issues than Australian tourists. Researchers have also found that Chinese tourists may feel uncomfortable or scared going into the water at a surf beach (Gardiner & Scott, 2014) and have a dislike for or fear of wild animals (Packer et al., 2014). None of these studies have explored the antecedent of those attitudes (e.g., values), or investigated the effect of those attitudes on behaviours. Schultz, Unipan, and Gamba (2000) also raised a concern that "little is known about the relationship between culture and environmental attitudes" (p.22). To fill this gap, one of the objectives of this study is to investigate the role of cultural values and environmental attitudes in relation to the environmental behaviour of outbound Chinese tourists. Therefore, the discussion now turns to a more detailed review of the literature on values, attitudes and environmental behaviours.

2.4 Values

This section reviews definitions and major approaches to measuring values. In addition to generic value scales, Chinese cultural values and value measurement are discussed. This section also examines evidence of the links between values and various environmental behaviours.

2.4.1 Definition of values

Scholars have spent more than four decades debating and defining the term 'values'. Table 2.1 presents some of the most common definitions of 'values'. Several common themes are evident in these definitions—values: (i) are enduring beliefs, (ii) are personal or social, (iii) transcend specific situations, (iv) pertain to desirable end-states and (v) guide the selection or evaluation of behaviour. These characteristics highlight why values are important to the present research. Firstly, the role that values play in explaining and predicting specific beliefs, attitudes and behavioural intentions has been empirically and theoretically demonstrated (Stern, 2000a). Secondly, values provide an efficient way of describing and explaining similarities and differences among individuals, groups

and cultures (De Groot & Steg, 2008; Rokeach, 1973). This study will be informed by the most frequently cited definition of values proposed by Rokeach (1973).

Table 2.1 Frequently Cited Definitions of Values

Author and Year	Definition
Rokeach (1968, p. 16)	Centrally held, enduring belief which guides actions and judgements across specific situations and beyond immediate goals to more ultimate end-states of existence.
Rokeach (1973, p. 5)	An enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence.
Lessig (1975, p. 228)	Abstract beliefs centrally located within the belief system.
Williams (1979, p. 16)	Interests, pleasures, likes, preferences, duties, moral obligations, desires, wants, goals, needs, aversions, attractions and many other kinds of selective orientations.
Pizam and Calantone (1987, p. 178)	The culture of a society, or sub- society, that is shared by its members.
Schwartz and Bilsky (1990, p. 878)	Concepts or beliefs, pertaining to desirable end-states or behaviours, that transcend specific situations, guide selection or evaluation of behaviour and events and are ordered by relative importance.
Schwartz (1992, p. 21)	Desirable trans-situational goals varying in importance, which serve as guiding principles in the life of a person or other social entity.
Kamakura and Novak (1992, p. 119)	A single belief that transcends any particular object, in contrast to an attitude, which refers to beliefs regarding a specific object or situation.
Lustig and Koester (2012, p. 88)	Involve what a culture regards as good or bad, right or wrong, fair or unfair, just or unjust, beautiful or ugly, clean or dirty, valuable or worthless, appropriate or inappropriate and kind or cruel.

Typically, when commentators discuss values, they are referring to personal values or cultural values. Personal values can be regarded as standards or criteria that influence evaluations or choices toward persons, objects and ideas (Vinson, Scott, & Lamont, 1977). In other words, one's personal values serve as guiding principles for the goals that one sets for oneself and the motivational forces that drive one's behaviour (Ho, Liao, Huang, & Chen, 2014). Scholars commonly use the word 'values' as shorthand for 'personal values' and there is often no distinction between these two concepts in the majority of research about values (e.g., Jayawardhena, 2004; Mehmetoglu, Hines, Graumann, & Greibrokk, 2010; Pitts & Woodside, 1986; Slimak & Dietz, 2006).

Cultural values refer to an entire culture's mindset and the understanding shared by most members within a society. Usually, cultural values are discussed from two perspectives: a) universal values and b) those that vary from one culture to another. Cultural values influence the attitudes and behaviours of a society (Mothersbaugh et al., 2007). Cultural values serve as basic criteria through which people evaluate their own behaviour and justify the behaviours of others (Watson, Lysonski, Gillan, & Raymore, 2002). Although researchers rarely distinguish between cultural values and

personal values, there is a recognition that the values of an entire culture can influence the personal value system of individuals (Cao, 2009). Moreover, an important point is that personal values are enduring and may not change over time, whereas cultural values represent collective society and do change slowly over time (Cao, 2009). Generally, cultural value transitions occur when economic developments, education and mass media influence the value systems of new generations (Cao, 2009). Table 2.2 shows the basic classification of different levels of values.

Table 2.2 the classification of values

Value types	Definition	Examples
Personal values	Standards or criteria that influence evaluations or choices toward persons, objects and ideas (Vinson et al., 1977).	Individual values (e.g., self-respect)
Collective values	An entire culture's mindset and the understanding shared by most members within a society (Samarasinghe, 2012).	Cultural values (e.g., harmony with others)
Contextual values	Context-specific values which based on personal values (Deng et al., 2006).	Environmental values (e.g., biospheric value)

Some scholars have also identified context-specific values which based on personal or cultural values, such as consumption values (Table 2.2) (e.g., Sheth, Newman, & Gross, 1991; Xiao & Kim, 2009) and environmental values (e.g., Oreg & Katz-Gerro, 2006; Poortinga, Steg, & Vlek, 2004; Steg, De Groot, Dreijerink, Abrahamse, & Siero, 2011). Nonetheless, there is a lack of consensus and consistency in the literature around how different types of values are defined and labelled in different research contexts. While personal values reflect an individual's mindset, consumer values are related to an individual's behaviour during and after consumption (Hawkins, Best, & Coney, 2004). Thus, consumption values are defined as the consumer's perceived importance of a product or service attribute (Xiao & Kim, 2009). More specifically, consumption values may explain why consumers choose one product over another and why they choose one brand over another (Sheth et al., 1991).

According to Zografos and Allcroft (2007), environmental values are those values held by people connecting humans with their natural environments. Generally, environmental values can be organised on a continuum ranging from anthropocentric (i.e., concern for the welfare of human beings) to biocentric (i.e., concern with welfare of all living things) and ecocentric (i.e., concern with non-human species or biosphere) (Zografos & Allcroft, 2007). Environmental values will be discussed further in section 2.5.3.

To conclude, values are considered to be one of the most stable psychological characteristics. They serve as guiding principles that direct an individual's attitudes, cognition, emotion and behaviours. Previous research has indicated that an individual's personal values reflect personal principles, standards, beliefs and ideas toward everyday choice; whilst cultural values are largely shared by the members of a group, society or culture. Cultural values will be the focus of the current study. The following section further expands on these points by critiquing the most common frameworks of values and values orientations.

2.4.2 Western measurement of values

This section reviews the major value scales and frameworks that have been developed to study values in consumer behaviour. As discussed, values have been studied for decades to understand the underlying motives of human behaviour. For almost as long as values have been studied in social science research, value measurement has been of interest to researchers (e.g., Kahle et al., 1986; Rokeach, 1973; Schwartz, 1994). Table 2.3 summarises the value scales predominantly used in the past few decades.

Table 2.3 Most widely used value measurement scales

Value Scales	Author (Year)	No. items	Type
Rokeach's Value Survey	Rokeach (1973)	36 items (18 terminal, 18 instrumental)	Personal
List of Values	Kahle et al. (1986)	9 items	Consumption
Hofstede's Cultural Values Framework	Hofstede (1984)	5 items	Universal
Schwartz's Value Theory	Schwartz (1994)	30 items	Universal

Rokeach's Value Survey

The earliest measure of values is Rokeach's Value Survey (RVS) (Rokeach, 1973). The RVS consists of two sets of values: 18 *instrumental* values (ideal modes of behaviour) and 18 *terminal* values (ideal end-states of existence) (see Appendix 1). The RVS asks respondents to rank these values in order of importance as guiding principles in their lives. The RVS instrument is often

employed in value-related research and the scale is widely used and commonly accepted in consumer behaviour research (e.g., Mehmetoglu et al., 2010).

Despite its frequent application, the RVS has received several criticisms. The first criticism relates to information loss during the ordering process, which occurs due to the large number of values (36 in total) that need to be ranked by respondents (Li & Cai, 2012; Mehmetoglu et al., 2010). Secondly, some of the values in the RVS value set can be criticised for their lack of relevance to daily life (Li & Cai, 2012; Mehmetoglu et al., 2010). Thirdly, Kamakura and Novak (1992) argued that the RVS covers collective and societal domains that may not play an important role in consumer research. Finally, in terms of cross-cultural suitability, Peng, Nisbett, and Wong (1997) found that the RVS was not able to adequately represent Chinese values.

List of Values

In response to some of the criticisms of the RVS, Kahle et al. (1986) developed a simplified survey scale for use in consumer settings known as the List of Values (LOV). The LOV was developed from a theoretical base of Feather (1975), 'sMaslow (1954) and Rokeach (1973) work on values. LOV consists of a 9-item value list, comprising self-respect, security, warm relationships with others, sense of accomplishment, self-fulfilment, sense of belonging, being well respected, fun and enjoyment in life and excitement (Kahle et al., 1986). Kahle's primary purpose for creating the LOV was to measure consumer values as a determinant of behaviour in market research. Due to its brevity and easy implementation, the LOV has been widely used in many studies (e.g., Chryssohoidis & Krystallis, 2005; Kim, Forsythe, Gu, & Jae Moon, 2002; Li & Cai, 2012; Madrigal, 1995; Mehmetoglu et al., 2010; Watkins & Gnoth, 2005). However, the LOV has been criticised as ethnocentric because the scale was designed for American consumer contexts (Watson et al., 2002).

Hofstede's Cultural Values Framework

One of the most widely recognised cultural value frameworks was developed by Hofstede (1984) and based on work-related values. The initial data were gathered from more than 118,000 IBM employees in 40 different countries and used to identify four dimensions of culture-related values. The four values were labelled 'power distance (PDI)', 'uncertainty avoidance (UAI)', 'individualism (IDV)' and 'masculinity (MAS)'. More recently, a fifth dimension was added to the original work of Hofstede (1980) — 'long-term orientation (LTO)'. It is one of the most influential works to date in the study of cross-cultural management (Fang, 2003).

Although Hofstede's (1984) cultural values framework has been used for more than three decades (Zhang et al., 2012) and has made a great contribution to our understanding of the differences and similarities between cultures, it has also received some criticism (McSweeney, 2002; Schwartz, 1994). Firstly, McSweeney (2002) argued that Hofstede's work assumes that there is a uniform national culture within a country, when this may not be the case in countries made up of diverse ethnic groups such as India and China. Secondly, Schwartz (1994) has questioned whether Hofstede's value items are equivalent across cultures. He suggests that Hofstede's value items may not be understood by people from different cultures in the same way and that it is necessary to test the dimensions for an inter-cultural comparison. Thirdly, it is argued that the IBM employees surveyed in Hofstede's work may not adequately represent the population of their representative countries (McSweeney, 2002; Schwartz, 1994). Fourthly, some researchers have argued that the framework is out of date and does not adequately capture modern values, particularly regarding rapid social economic changes in some countries (Zhang et al., 2012). Finally, some scholars have argued that the five dimensions do not adequately explain cultural differences (Jones, 2007). Essentially, Hofstede's value scale was developed for comparing cultures. It uses a set of standard dimensions as the basis for this comparison; however, these dimensions are not useful when the purpose is not to compare cultures.

Schwartz's value theory

To address the shortcomings of the RVS, LOV and Hofstede's Cultural Values, Schwartz (1994) developed a value theory that examines value differences across countries and different societies with diverse goals. Schwartz has spent more than two decades developing this value typology and has applied and refined it around the world (Vaisey & Miles, 2014). His model is depicted in Figure 2.2.

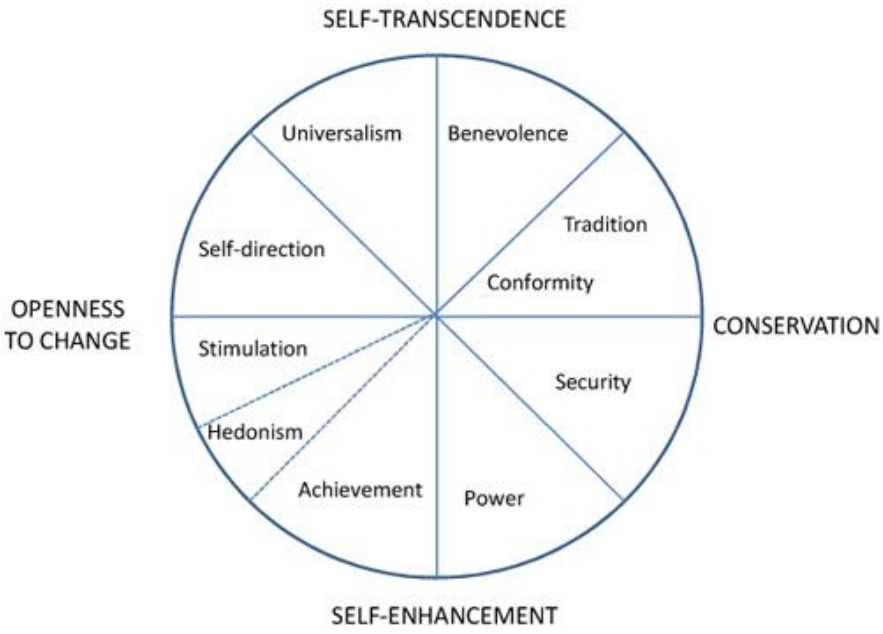

Figure 2.2 Schwartz's value theory (Source: Schwartz, 1994)

Schwartz (1994) distinguishes ten basic values: universalism, benevolence, conformity, tradition, security, power, achievement, hedonism, stimulation and self-direction. For simplicity, these values are always grouped into four value categories and two dimensions: self-transcendence vs. self-enhancement and openness to change vs. conservation. Vaisey and Miles (2014) provide useful descriptors for each value in Schwartz's value set (see Appendix 2). A number of value-related studies in various research fields have used the Schwartz value survey (e.g., Bojan & Janek, 2009; Haslam, Whelan, & Bastian, 2009; Steenhaut & Van Kenhove, 2006; Sun, Su, & Huang, 2013).

Despite being widely used and well established, Schwartz's value theory has also received some criticism. Firstly, it has been suggested that Schwartz's Value Theory is 'universal'; however, some researchers have argued that there is no universal theory that is able to fully capture the nuances of local cultural values (Zhang et al., 2012). Secondly, values that are important in Chinese culture such as egalitarianism versus hierarchy are not evident in Schwartz's Value Theory (Zhang et al., 2012). Although the value systems designed by Hofstede and Schwartz may capture values common in several cultures, they fail to consider specific Chinese values.

Chinese value systems may appear similar to those of other societies, but they contain elements that are particular to China, such as conflict, confusion and change (Lin & Lu Wang, 2010). Many researchers have pointed out that Chinese values are unlikely to be fully captured using Western value scales. The main reason for this is that traditional Chinese culture is described as a complex

amalgam of value systems informed by Confucianism, Daoism and Buddhism (Faure & Fang, 2008; Zhang et al., 2012). These value systems do not exist in most Western cultures and are rarely mentioned in Western research. Furthermore, as the amount of Chinese value-related research has increased, there is a clear need to establish a valid method of measuring the Chinese value system (Zhang et al., 2012). Zhang et al. (2012) argued that there is no universal theory that can grasp the complex nature of local cultural values.

2.4.3 Chinese measurement of values

Confucianism

It is well known that Confucianism, supplemented by Daoism, is one of the most distinguishable characteristics of Chinese culture. In studies of the psychology and personality of Chinese people, the predominant emphasis has been on Chinese cultural stereotypes derived from Confucian thinking (Lau, 1988). A general philosophy of Confucianism is the importance of proper relationships (i.e., human-to-himself, human-to-others and human-to-nature). The emphasis is on balance and harmony between nature and human society (Tucker & Berthrong, 1998; Yau, 1988). This philosophy promotes the ideal of harmony with natural and social surroundings, which has become a leading objective of Chinese culture (Bond & Hwang, 1986; Rui & Butcher, 2008; Yau, 1988, 1994). As can be revealed by Confucius' work, interpersonal relationships and social orientations are two central ethoses of Chinese cultural values. Confucius is often referred to as the teacher of ten thousand generations and his philosophies continue to influence contemporary Chinese cultural values (Fu et al., 2015; Yau, 1994).

Daoism

Unlike Confucianism, Daoist teachings place importance on the spontaneous and continuous principle. Daoism also posits that human beings and nature are integrated as well as interconnected (Novak, 1993). There are four main constructs of Daoism, which are 'Dao', 'De', 'Wuwei' and 'Yinyang' (Leung, 2010; Novak, 1993). 'Dao' is considered to be the central concept of Daoism, which refers to 'way', 'path' and 'rule of conduct'. It refers to the process or reality itself and the way things come together. According to the nature of Dao, change is the most basic characteristic of things. This suggests that attaining 'oneness' (dao) is the ultimate goal of Daoist attitudes toward nature. 'De' reflects an equal relationship between human beings and other things with respect to the intrinsic value of everything. That is, humans have no supreme power to control nature. 'Wuwei' is based on the belief that humans should fit within natural surroundings and follow

natural laws (Leung, 2010). The final construct of Daoism, yinyang, plays an important role in illustrating a mutually dependent relationship between humans and nature. It refers to two opposites under constancy of change in the universe, such as bright and dark, fire and water, day and night and male and female.

Buddhism

The first two systems of thought are endemic to Chinese culture while Buddhism is a foreign religion introduced from India and suffused into Chinese culture over the past two thousand years (Eckhardt & Zhao, 2012; Guang, 2013). Along with Confucianism and Daoism, Buddhism influences the worldview, morals and ethics of Chinese people (Eckhardt & Zhao, 2012). The belief that a close mutual dependence exists between humanity and nature and that everything in nature is interrelated and interconnected is a core moral virtue in Buddhism (Zhang, 2005a). Buddhism also posits that there will be retribution for all one's behaviours in life, regardless of whether they are good or evil. Thus, it suggests that one must value cultivation and persist in everyday life, as good fortune will come to those who are good and ill fortune to those who are evil (Tang & Tang, 1991).

To provide an accurate understanding of Chinese cultural values, several researchers have developed value scales specifically designed for measuring Chinese cultural values. However, like the Western literature, the literature on Chinese values exhibits a lack of consensus about the best scales to use in particular research contexts. The following discussion will review and critique some of the most commonly used systems for measuring Chinese values. Table 2.4 summarises the most-used Chinese cultural value scales.

Table 2.4 Most widely used Chinese Cultural Value measurement scales

Chinese Cultural Values Scales	Author (Year)	No. items	Number of dimensions
Chinese Value Survey	Chinese Culture Connection (1987)	40 items	4 dimensions: Integrity and tolerance, Confucian ethos, Loyalty to ideals and humanity and Moderation and moral discipline
Confucian, Daoist and Buddhist Values	Zhang (2005a)	22 items	8 dimensions: Fit between behaviours and social status, Family reputation, Listen to others, Nature admiration, Harmony with nature, Karma, Luxury uselessness and Belief in Fate
Chinese Cultural Values Orientation	Yau (1988)	30 items	5 dimensions: Man-to-nature orientation, Man-to-himself orientation, Relational orientation, Time orientation and Personal activity orientation
Contemporary Chinese Cultural Values	Hsu and Huang (2016)	40 items	3 dimensions: Instrumental values, Terminal values and Interpersonal values

The Chinese Culture Connection's Chinese Value Survey

The Chinese Value Survey (CVS) was developed by a group of researchers known as the 'Chinese Culture Connection' (1987). The Chinese Culture Connection (1987) emphasised that China's recorded history has spanned 4,000 years and this history is reflected in the daily life and human concerns of Chinese people. A survey of Chinese values was developed to measure Chinese worldviews (see Appendix 3). The primary intention of the research was to develop a measure of values that would reflect Chinese culture. In an attempt to identify universal dimensions of individual variation in multicultural studies of values, Bond (1988) compared the CVS with the Rokeach Value Survey (RVS) more commonly found in the Western academic literature. This comparison revealed that Western value systems were not able to measure the values of people who come from ethnic Chinese backgrounds because they did not include values that may be central to this culture (Bond, 1988). Matthews (2000) conducted a preliminary study with university students from an ethnically Chinese background using the scale developed by Bond (1988). Factor analysis was conducted on this scale and the dimensions were the same as the original dimensions, with one value item (i.e., a close, intimate friend) deleted (Matthews, 2000).

Zhang's Value Survey

Due to the complexity of Chinese culture, many past studies of Chinese cultural values have lacked depth and specificity. For example, most Western researchers tend to interchangeably use the concept of "Asian culture" and "Chinese culture", which is considered to be improper (Zhang, 2005a). Zhang's (2005a) approach was to develop a value system based around the three main streams of traditional Chinese culture: Confucianism, Daoism and Buddhism. These three core ethoses play an important role in the cultural values of Chinese people. Thus, these three ethoses might be considered to be significant antecedents of consumer behaviour. In order to measure the impact of Chinese cultural values on Chinese consumer behaviour, three measurement scales (i.e., the Confucianism Cultural Values Scale, Daoism Cultural Values Scale and Buddhism Cultural Values Scale) were developed by Zhang (2005a) (see Appendix 4).

Zhang (2005a) tested the predictive ability of both Chinese (i.e., Confucianism, Daoism and Buddhism value system) and Western (i.e., Hofstede cultural dimensions) value systems in her study. The results indicated that Daoist values had the strongest influence on the consumer behaviour of Chinese. Confucian and Buddhist values were also influential but Western cultural values played the least important role in determining Chinese consumer behaviours (Zhang, 2005a).

The categorisation of the value items was constructed by Zhang and underlying constructs have not been confirmed through further statistical analysis.

Yau's Chinese Cultural Values

Yau (1988, p. 45) believed "Chinese cultural values are largely formed and created from interpersonal relationships and social orientations." Kluckhohn and Strodtbeck (1961) classified cultural values into five dimensions: (1) man-nature orientation, (2) man-himself orientation, (3) relations orientation, (4) time orientation, and (5) personal activity orientation. Yau (1988) adopted the value-orientation model of Kluckhohn and Strodtbeck (1961) to describe Chinese Cultural Values (CCVs) as this model places emphasis on relationships. However, the constructs have not been tested or validated through further statistical analysis.

Table 2.5 Dimensions of Chinese Cultural Values Orientation

Dimensions	**Sub-dimensions**
Man-to-nature orientation	Harmony with nature Yuarn (Karma)
Man-to-himself orientation	Abasement Situation-orientation
Relational orientation	Respect for authority Interdependence Group-orientation Face
Time orientation	Continuity Past-time orientation
Personal activity orientation	The doctrine of the mean Harmony with others

(Source: Yau, 1988)

The CCVs developed by Yau (1988) have been widely used in consumer research contexts, including service provision in the hospitality and tourism industry (Tsang, 2011); customer satisfaction and loyalty (Rui & Butcher, 2008); personality and psychological testing (Leung & Bond, 2001; Yung et al., 2000); consumer behaviour (Becker & Murrmann, 1999; Chan & Lin, 1992; Le Claire, 1993); and ethnic attitudes (Le Claire, 1992). One area that has been overlooked in cultural values research is the linkage between the CCVs and pro-environmental behaviour. Yau's

value scale (1988) emphasises the relationship between human beings and nature but the scale has not been used to examine how these values influence pro-environmental behaviours. The relationship between Chinese people and nature was described in this way: “the Chinese regard man as a part of nature, and believe that man should not try to overcome or master nature but has to learn how to adapt to it so as to reach harmony” (Yau, 1988, p. 46) (see Appendix 5).

Although there are some well-developed Chinese value measurements, some implementation challenges remain. Few of the Chinese value scales have been comprehensively tested and thus may not have sufficient validity and reliability. The construct validity of some of these scales has not been tested or confirmed using statistical analysis. This highlights a need to explore and test Chinese cultural value scales in different contexts, including the outbound tourism context.

Hsu and Huang’s Value Framework

Hsu and Huang (2016) point out that “Culture is dynamic and evolutionary in nature.” With rapid globalisation and modernisation, Chinese cultural values have evolved and changed. Contemporary Chinese people simultaneously adopt both traditional and modern cultural values, making the measurement of Chinese cultural values challenging (Fang, 2012; Hsu & Huang, 2016; Leung, Bhagat, Buchan, Erez, & Gibson, 2005). This complexity requires alternative perspectives in values research. Recognising the evolution of Chinese cultural values, Hsu and Huang (2016) developed a revised Chinese cultural value framework that captures both traditional and modern Chinese cultural values (see Appendix 6).

The revised value system was based on focus group discussions. Values were grouped into three types; namely, instrumental values, terminal values and interpersonal values. In addition to reconfiguring Chinese cultural values, Hsu and Huang (2016) identified the implications for tourism. Results showed that the modern terminal values related to travel behaviours included convenience, indulgence, leisure, liberation, self-interest and ostentation. Traditional values related to travel behaviours included courtesy and morality, honesty, respect for history, thrift, horizon broadening, knowledge and education, stability and security, conformity and family orientation. The qualitative methodology used by Hsu and Huang was useful for conceptualising and identifying a mix of modern and traditional values. However, their framework has not been quantitatively tested.

2.4.4 Chinese cultural values and tourist behaviour

The influence of Chinese cultural values on tourist behaviour is well researched (e.g., Fu et al., 2015; Gao et al., 2017; Hsu & Huang, 2016; Kwek & Lee, 2010). Mok and DeFranco (2000) reviewed the dominant Chinese cultural values and their implications for tourism marketing and proposed a cultural framework consisting of six attributes: *authority, interdependence, face, group orientation, harmony and external attribution*. Among all the other value items, 'harmony' was singled out as the most salient cultural value as Chinese people are group-oriented and have a strong focus on interpersonal relationships (Mok & DeFranco, 2000).

Kwek and Lee (2010) conducted a study into the impact of Confucianism on Chinese corporate travellers to Australia. Through observation of a group of incentive tourists, Kwek and Lee (2010) found that 'harmony' played a dominant role in representing these tourists' behaviours. Moreover, values like authority, relationship building (guanxi) and conformity were identified as explaining these Chinese tourists' behaviours. The authors also noted that values like harmony, authority and respect were derived from the Confucianism value of Li (propriety), and that Chinese tourists conform to what Li proposes as appropriate behaviours when they are involved in tourism activities. For example, during the group tour, individuals tended to please other group members to show "respect for authority" and to seek group "harmony".

Fu et al. (2015) explored Chinese visitors' motivation by presenting Chinese tourists' cultural values, based on the Confucian interpretation of life ideals. The study revealed a series of motivational forces which should contribute to understanding Chinese tourists, such as Zhong-yong (the *Doctrine of the Mean*), filial piety and reciprocity. Gao et al. (2017) investigated the influence of 'face' on Chinese outbound group tourists' gift purchasing behaviour. As an important component of traditional Chinese cultural values, face is "a reflection of the social psychological processes in Chinese society that emphasises the importance placed on social status and expectations" (Kwek & Lee, 2010, p. 131). The results indicated that 'face' positively affected gift-purchasing behaviours, such as gift selection effort, brand orientation and purchase cost. The author also suggested that cultural values operating in a home context influenced behaviours in tourism contexts.

In addition to traditional Chinese cultural values, Hsu and Huang (2016) explored the Chinese cultural values that prevail in contemporary Chinese society and identified potential links between certain values and travel behaviours. For example, 'respect for history' influenced preferences for

travel activities (e.g., historic sites and museums), 'thrift' had an impact on tourists' destination choice (e.g., assess value for money) and 'convenience' affected tourists' choice of travel style (e.g., package tour).

The influence of Chinese cultural values on tourist behaviour has been widely discussed from various perspectives, however, few tourism studies have adopted comprehensive or widely validated cultural value scales. Two distinct limitations are evident in most studies. Firstly, the majority of studies examined the impact of a single value item (e.g., 'face') or one single stream of the Chinese value system (e.g., 'Confucianism') on tourist behaviour. These studies fail to take multiple value items and their synergistic effects into consideration. Secondly, most of these studies were conducted using qualitative methods (e.g., Hsu & Huang, 2016) ; quantitative analyses of the causal relationship between Chinese cultural values and tourist behaviours are rare.

Despite sporadic studies attempting to examine the relationship between Chinese cultural values and tourist behaviour, a well-developed valid and reliable scale to accurately measure Chinese cultural values is lacking. Therefore, the objective of the pilot study is to validate value measurement scales for use in future Chinese tourist behaviour studies.

2.5 Attitudes

Attitudes are evaluative judgments that integrate and summarise cognitive, affective and behavioural reactions (Crano & Prislin, 2006). Environmental attitudes (EA) have been shown to influence specific environmental behaviours such as green consumption (Samarasinghe, 2012), conservation behaviour (Laudenslager, Holt, & Lofgren, 2004; McCarty & Shrum, 1994), leisure choice (Ajzen & Driver, 1992) and choice of travel mode (Paulssen, Temme, Vij, & Walker, 2014). In turn, tourists' destination experiences (e.g., wildlife tourism) have the potential to shape individual attitudes by raising awareness of environmental issues and appreciation for wildlife and nature (Ballantyne & Packer, 2009; Ballantyne, Packer, Hughes, & Dierking, 2007; Lee & Moscardo, 2005). Understanding environmental attitudes is therefore a necessary precursor to gaining a better understanding of environmental behaviours.

2.5.1 Understanding environmental attitudes

Several definitions of environmental attitudes have been proposed by different researchers. The following table provides a summary of some of the most commonly-cited definitions of environmental attitudes.

Table 2.6 Definitions of environmental attitudes

Author and Year	Definition
Gifford (1997, p. 47)	An individual's concern for the physical environment as something that is worthy of protection, understanding, or enhancement
Minton and Rose (1997, p. 38)	A general attitude toward preserving the environment
Fransson and Gärling (1999, p. 370)	An evaluation of, or an attitude towards facts, one's own behaviour, or others' behaviour with consequences for the environment
Hunter, Hatch, and Johnson (2004, p. 678)	The degree to which people are aware of problems regarding the environment and support efforts to solve them and/or indicate a willingness to contribute personally to their solution
Schultz, Shriver, Tabanico, and Khazian (2004, p. 31)	The collection of beliefs, affect and behavioural intentions a person holds regarding environment-related activities or issues
Hansla, Gamble, Juliusson, and Gärling (2008, p. 3)	An attitude towards environmental issues; that is, an evaluation
Berns and Simpson (2009, p. 81)	An awareness of environmental problems and a commitment to the protection of valued recreation sites
Milfont and Duckitt (2010, p. 80)	A psychological tendency expressed by evaluating the natural environment with some degree of favour or disfavour
Pradeep (2012, p. 169)	An attitude towards facts, one's own behaviour or other's behaviour with consequences for the environment

Most of the definitions presented in Table 2.6 describe environmental attitudes as an individual's level of concern for and awareness of preserving and protecting the environment. Many researchers have used "environmental concern", "environmental attitudes" and "environmental worldview" interchangeably (e.g., Fransson & Gärling, 1999; Schultz & Zelezny, 2003). However, given that 'environmental attitudes' is the preferred term in social science and psychology studies (Barker & Dawson, 2012; Lee & Jan, 2015; Samarasinghe, 2012), it seems the most appropriate term for the current study.

Some researchers have used the three-component attitude model as an approach for specifying the structure of environmental attitudes (e.g., Cottrell, 2003; Yin, 1999). These researchers have postulated that environmental attitudes have cognitive, affective and behavioural (conative) components. The cognitive component of environmental attitudes consists of the knowledge facet of an attitude (Cottrell, 2003). The affective component is the feeling-based evaluation of an attitude object (Cottrell, 2003). It includes those variables that measure feelings and beliefs about certain issues. The behavioural component refers to the behavioural intention regarding an object (Cottrell, 2003). However, some researchers have argued that "affect, beliefs and behaviours are seen as interacting with attitudes rather than as being their parts" (Albarracín, Zanna, Johnson, & Kumkale, 2005, p. 5).

In order a better understand environmental attitudes, some researchers have explored their dimensionality (e.g., Milfont & Duckitt, 2010; Milfont, Duckitt, & Cameron, 2006; Poortinga, Steg, & Vlek, 2002; Schultz, 2000). Generally, there are two main approaches to the dimensionality of environmental attitudes; namely, as a unidimensional construct or a multidimensional construct. In the traditional approach, environmental attitudes are seen as a continuum ranging from unconcerned about the environment to concerned about the environment and environmental issues (Poortinga et al., 2002; Schultz, 2000). Proponents of this approach have measured environmental attitudes using the New Environmental Paradigm (NEP) scale (Dunlap, Van Liere, Mertig, & Jones, 2000).

More recently, it has been suggested that environmental attitudes may be a multidimensional construct (Milfont & Duckitt, 2010). In this approach, environmental attitudes can have two dimensions. In this two-dimensional higher order structure of environmental attitudes, environmental attitudes are classified as rooted in either a belief that priority should be given to preserving natural environment and species (i.e., Preservation) or a belief that it is appropriate for nature and natural species to be used and altered for human objectives (i.e., Utilisation). These two environmental attitude dimensions are measured using the Environmental Attitude Inventory (EAI) (Milfont & Duckitt, 2010). Commonly used environmental attitude measurement scales, measurement concerns and other relevant issues will be discussed in the next section.

2.5.2 Environmental attitudes

Environmental attitudes (EAs) are a crucial construct in environmental psychology. Unlike behaviour, attitude is a latent construct that cannot be observed directly (Milfont & Duckitt, 2010). Therefore, environmental attitudes are commonly measured using self-reported methods (e.g., interviews and questionnaires) and implicit measurement (e.g., priming and response competition measures) (Krosnick, Judd, & Wittenbrink, 2005). Although some studies have used implicit attitude measurement (Schultz et al., 2004; Schultz & Tabanico, 2007), most have used direct self-reported techniques for measuring environmental attitudes (Corral-Verdugo, 1997; Milfont & Duckitt, 2010). Despite the large number of environmental attitudes measures, only four frameworks have been widely used: The Environmental Concern Scale (ECS), the New Environmental Paradigm (NEP), the New Ecological Paradigm (i.e., revised NEP) and its Chinese version, and the Environmental Attitudes Inventory (EAI). These frameworks have been used to study a range of environmental topics and all five scales employ multiple-item assessment techniques (Milfont & Duckitt, 2010). Table 2.7 provides a summary of widely used EA measurement scales and their strengths and weaknesses.

Environmental Concern Scale (ECS)

The Environmental Concern Scale (ECS) was developed to measure participants' general concern about environmental issues and was more popular than the NEP scale in the 1970s and early 1980s (Dunlap, 2008; Dunlap et al., 2000). The scale measures the relative importance of environmental issues compared to economic and technological progress, attitudes towards specific environmental issues and personal impacts (Kostova et al., 2011). The ECS consists of 16 items rated on a five-point Likert-type scale, (1 = strongly disagree … 5 = strongly agree) (See Appendix 7). The 16 items focus on the cognitive, affective and conative aspects of several environmental topics. Seven of the scale items are worded to reflect positive attitudes toward the environment (i.e., conservation and pollution issues). The remaining nine items reflect a lack of concern and are reverse coded. The internal consistency and test-retest reliability and predictive validity have been reported (Weigel & Weigel, 1978). Despite the wide utilisation of the scale, it is clear that it is not without criticism. The most obvious weakness of the ECS scale is the use of outdated items. The scale was developed almost forty years ago and the items in the scale do not reflect up-to-date environmental issues (e.g., climate change and global warming).

Table 2.7 Strengths and weaknesses of major environmental attitude frameworks

Scales	No. items	Strengths	Weaknesses
Environmental Concern Scale (ECS) **(Weigel & Weigel, 1978**)	16	• Measures the relative importance of environmental issues compared to economic and technological processes, attitudes towards specific environmental issues and personal impacts (Kostova, Vladimirova, & Radoynovska, 2011).	• Items referring to specific environmental topics have become dated as new issues emerge, such as climate change (Dunlap et al., 2000; Hawcroft & Milfont, 2010).
New Environmental Paradigm (NEP) **(Dunlap & Van Liere, 1978**)	12	• Measures general beliefs about the relationship of human beings to the environment (Hawcroft & Milfont, 2010); • The reliability and validity of the scale has been demonstrated by five main findings (Hawcroft & Milfont, 2010);	• A lack of internal consistency among individual responses (Scott & Willits, 1994); • Poor correlation between the scale and behaviour (Scott & Willits, 1994).
New Ecological Paradigm (revised NEP) **(Dunlap et al., 2000)**	15	• More psychometrically sound and avoids outdated terminology (Hawcroft & Milfont, 2010); • The reliability and validity of the revised NEP are well established (Hawcroft & Milfont, 2010); • Correlates highly with other measures of general EA (Dunlap et al., 2000); • Predicts many pro-environmental behaviours (Kortenkamp & Moore,	• Overly simplistic and out-dated (Lalonde & Jackson, 2002); • Not able to cover many of environmental attitude dimensions (Milfont & Duckitt, 2010); • The one dimensional nature of the scale may not accurately reflect the underlying complexity and dimensionality of an

		2006; Olli, Grendstad, & Wollebaek, 2001).	individual's environmental attitudes (Hawcroft & Milfont, 2010; Hedlund-de Witt, 2012). • The scale may not be applicable beyond developed nations (Chatterjee, 2008). • Missing elements of the pro-environmental worldview, such as biocentric and ecocentric worldviews (Lundmark, 2007).
Chinese version New Ecological Paradigm (revised NEP) **(Hong, 2006)**	13	• The scale has been shown to predict many pro-environmental behaviours in Chinese contexts (Hong, 2006; Hong & Lu, 2011; Hong & Xiao, 2007). • Reliability and validity has been demonstrated (Hong, 2006; Hong & Lu, 2011).	• The scale was originally tested with Chinese living in urban areas while the rural population was ignored (Hong, 2006).
Environmental Attitude Inventory (EAI) **(Milfont & Duckitt, 2010)**	24	• EAI is considered to be an appropriate tool for measuring multi-dimensional environmental attitudes (Sutton & Gyuris, 2015).	• 24-item version of EAI is problematic as the two items composing each of the 12 scales are most often reversed pairs (Sutton & Gyuris, 2015); • Length of the EAI scale (Sutton & Gyuris, 2015).

New Environmental Paradigm

One of the most popular measures of environmental attitudes is the New Environmental Paradigm (NEP) scale developed by Dunlap and Van Liere (1978). Rather than measuring attitudes to specific environmental topics, the NEP scale attempts to measure general environmental attitudes and the overall relationship between humans and the environment (see Appendix 8) (Milfont & Duckitt, 2010). The NEP was designed to measure the environmental concern of groups of people using a survey instrument which included twelve statements, such as "We are approaching the limit of the number of people the earth can support" and "The balance of nature is very delicate and easily upset". Respondents were asked to rate their agreement with each statement using a Likert scale (Dunlap & Van Liere, 1978).

The NEP scale was found to possess sufficient internal consistency as a unidimensional rating scale. Although the twelve items can be classified into three categories, these items constitute a coherent worldview (Dunlap, 2008). The NEP has been used to measure environmental beliefs and attitudes in diverse populations (Hawcroft & Milfont, 2010), but the scale has been criticised for its lack of internal consistency among individual responses and poor predictability (see Table 2.6). It has also been criticised as being dated and lacking in applicability beyond developed countries (Chatterjee, 2008; Lalonde & Jackson, 2002).

New Ecological Paradigm

To deal with the weaknesses of the original NEP scale, Dunlap et al. (2000) developed a New Ecological Paradigm that they termed the revised NEP (see Appendix 8). In addition to the original twelve items, two new facets of an ecological worldview were added. The revised NEP incorporated five important improvements on the original NEP. Firstly, the revised scale was redesigned to measure the degree to which respondents felt modern industrial society was exempt from ecological constraints. Secondly, the scale captured attitudes about the likelihood of eco-crises due to the growing awareness of global problems, such as climate change. Thirdly, three items were developed for each of the five facets. Fourthly, outmoded terminology (e.g., mankind) was revised. Fifthly, the revised NEP scale was grounded in relevant social-psychological theory by measuring attitudes about the relationship between humans and their surrounding environments. As a result, eight pro-NEP items and seven anti-NEP items were produced to ensure each facet was measured with items in both directions. In total, fifteen items were produced, including "If things continue on their present course, we will soon experience a major ecological disaster." and "The balance of nature is strong enough to cope with the impacts of modern industrial nations." Although the revised NEP scale has been widely used, it has been criticised for lacking cross-cultural validity. The major limitation of the revised NEP is that it lacks internal consistency and omits some important items.

New Ecological Paradigm (Chinese Version)

In order to overcome the cross-cultural limitation of the revised NEP scale, a Chinese version of the revised NEP scale was developed and tested with a Chinese sample (see Appendix 9) (Hong, 2006). The statements used in the Chinese-version were consistent with the English version of the revised NEP, except for rhetorical changes to account for Chinese linguistic differences. The scale was tested with over 5 000 Chinese respondents covering most Chinese provinces and cities, such as Beijing, Shanghai and Hangzhou. Validity and reliability testing indicated that the factor loading and internal consistency of the fourth item (i.e., Human ingenuity will ensure that we do NOT make the earth unliveable) and the fourteenth item (i.e., Humans will eventually learn enough about how nature works to be able to control it) were low. Thus, these two attitude items were deleted from the original scale for use with Chinese populations. Therefore, the Chinese version of the NEP scale includes thirteen items with good internal consistency and reliability. This version of the NEP scale has been widely accepted and used in Chinese literature (Hong & Lu, 2011; Hong & Xiao, 2007; Zhou, 2011). It should be noted that the validity and reliability of the Chinese version revised NEP scale was only tested with urban Chinese populations.

Environmental Attitudes Inventory (EAI)

More recently, Milfont and Duckitt (2010) developed an Environmental Attitude Inventory (EAI). The EAI was developed from a pool of 200 scale items, many of which were drawn from existing measurements, such as the NEP (Dunlap et al., 2000), the Ecological World View Scale (Blaikie, 1992), and the Environment Perception Scale (Milfont & Duckitt, 2010). From the initial 200 items, the best 120 items were selected based on specific psychometric criteria (Milfont & Duckitt, 2010). The Environmental Attitude Inventory (EAI) is a culture-general and fully balanced tool developed as an alternative to the NEP and other instruments to measure multidimensional and hierarchical environmental attitudes (see Appendix 10) (Milfont, 2009; Sutton & Gyuris, 2015). The EAI scale comprises 12 specific facets (e.g., personal consumption behaviour, support for population growth policies, eco-centric concern for nature), which define the two-dimensional higher order structure of environmental attitudes: *Preservation* and *Utilisation* (Milfont & Duckitt, 2004, 2006, 2010). "*Preservation* expresses the general belief that priority should be given to preserving nature and the diversity of natural species in its original natural states and protecting it from human use and alteration. *Utilisation,* in contrast, expresses the general belief that it is right, appropriate and necessary for nature and all natural phenomena and species to be used and altered for human objectives" (Milfont & Duckitt, 2010, p.81). Additionally, the 12 items were established through confirmatory factor analysis and shown to be unidimensional with high internal consistency, homogeneity and high test-retest reliability. Furthermore, the scale was showed to be free from social desirability (Milfont & Duckitt, 2010). A criticism of the more recent EAI scale is that the two items composing each of the 12 scales are simply reversed pairs with no re-composition.

Although there are many commonly used EA measurement scales, each with its own strengths and weaknesses, only one was selected for measuring tourists' EA in the current research. The Chinese version revised NEP scale was selected as the EA measurement instrument for three reasons: 1) the target sample of this present study is Chinese outbound tourists, thus the Chinese version EA measurement would fit Chinese people well; 2) the scale has been tested with Chinese people thus the validity of the scale has been confirmed; 3) the Chinese version revised NEP scale includes only 13 items which may shorten the length of the questionnaire.

2.5.3 Values and Environmental Attitudes

It is often suggested that environmental attitudes and behaviours are influenced by values (e.g., Han, 2015; Poortinga et al., 2004; Schultz et al., 2005; Turaga, Howarth, & Borsuk, 2010). In the past few decades, many researchers have studied the relationship between values and environmental

attitudes (e.g., Grunert & Juhl, 1995; Nordlund & Garvill, 2002; Schultz & Zelezny, 2003; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). Some studies have investigated the influence of environmental values on environmental attitudes (e.g., Deng et al., 2006), while others have examined the impact of cultural values on environmental attitudes (e.g., Kim & Choi, 2005).

Environment-related values are conceptualised in a relatively consistent way by researchers. Most frameworks refer to altruistic, biospheric and egoistic values (Stern & Dietz, 1994) and anthropocentric and ecocentric values (Eckersley, 1992). Although all of these value orientations have been used widely in the environmental literature, the most discussed value orientations are those developed by Stern and Dietz (1994). Stern and Dietz (1994) proposed three value orientations that govern environmental attitudes and behaviours: social altruistic value orientation, biospheric value orientation and egoism. Social altruistic values orientation is based on Schwartz's theory of altruism (Schwartz, 1992). Individuals who have a strong concern for the welfare of other human beings are said to present values of social altruism. Individuals who exhibit a concern for non-human species or the biosphere display biospheric values. Individuals who tend to be more self-interested usually score highly on egoism. However, there has been poor empirical support for the distinction between the altruistic and biospheric value orientations (De Groot & Steg, 2008).

Some researchers have corroborated the relationship between environment-related values and environmental attitudes. Deng et al. (2006) compared environmental values and attitudes between Chinese in Canada and Anglo-Canadians. The results confirmed that individuals who had high biosphere values had a more positive attitude towards the environment, whereas social-altruistic values were not related to positive environmental attitudes. However, Chinese in Canada are more supportive of social-altruistic values than are Anglo-Canadians. De Groot and Steg (2008) examined whether an egoistic, altruistic and biospheric value orientation could be distinguished empirically and whether these value orientations played a different role in specific beliefs and behavioural intentions. Their research indicated that altruistic and biospheric value orientations strongly influence environmental beliefs and behavioural intentions.

In addition to environment-related values, a number of studies have examined the links between cultural values and environmental attitudes (Kim & Choi, 2005; Leonidou, Leonidou, & Kvasova, 2010; Sarigöllü, 2009). Hofstede's individualism vs. collectivism orientations have become key variables in a wide variety of environmental studies (Samarasinghe, 2012). According to Kim and Choi (2005), consumers from collectivistic cultures are more likely to develop positive environmental attitudes. This is because "collectivistic individuals who value group goals and

cooperation might be highly motivated to make pro-environmental choices by having stronger beliefs that their behaviour would make a difference in mitigating environmental problems" (Kim & Choi, 2005, p. 596). Additionally, Sarigöllü (2009) found that people who had a long-term orientation are more likely to develop positive attitudes towards protecting the natural environment.

Although a number of studies have investigated the relationship between values (e.g., environment-related values and Western cultural values) and environmental attitudes, there is little research examining the relationship between Chinese cultural values and environmental attitudes. Existing studies have used environmental attitude measures developed from studies of Western populations, ignoring the cross-cultural validity of the measurement scales. This highlights a need to explore the relationship between Chinese cultural values and environmental attitudes of the Chinese population.

Based on this discussion, the first research objective (RO1) for this study is to test the relationship between Chinese Cultural Values and the environmental attitudes of Chinese tourists.

2.6 Environmental Behaviour

The most studied behaviours in the environment- and nature-based tourism context are tourists' pro-environmental behaviours (e.g., Han, 2015; Juvan & Dolnicar, 2014b; Miller et al., 2015; Walker & Moscardo, 2014) and nature-based recreational behaviours (e.g., Bell et al., 2007; Bjerke & Kleiven, 2006; Han, 2015; Luo & Deng, 2007).

These studies mainly focus on the following research areas: attitude-behaviour gap in sustainable tourism (e.g., Juvan & Dolnicar, 2014a), sustainable tourist behaviours (e.g., Johnson, 2002; Miller et al., 2015), differences between consumers' pro-environmental attitudes and behaviours at home and on vacation (e.g., Untaru, Epuran, & Ispas, 2014), values and willingness to accept sustainable tourism alternatives (e.g., Hedlund, 2011), long-term conservation behaviour after wildlife viewing (e.g., Hughes, 2013) and nature-based tourism activity consumption (e.g., Tangeland, 2011). Given that the two main components of nature-based tourism are protecting the environment and being close to nature, this study will focus on tourists' on-site pro-environmental behaviour and nature-based activity participation. In this section, a critical review of studies examining these two areas of environmental behaviour is provided.

2.6.1 Understanding pro-environmental behaviour

Pro-environmental behaviours have been studied by a number of researchers in several research domains, including environmental psychology (e.g., Ohtomo & Hirose, 2007), environmental management (e.g., Dolnicar et al., 2012) and nature-based tourism (e.g., Wearing, Cynn, Ponting, & McDonald, 2002). Table 2.8 summarises recent definitions of pro-environmental behaviour.

Table 2.8 Definitions of pro-environmental behaviour

Author (Year)	Pro-environmental behaviour
Stern (2000a, p. 408)	The extent to which the behaviour changes the availability of materials or energy from the environment or alters the structure and dynamics of ecosystems or the biosphere itself.
López and Cuervo-Arango (2008, p. 623)	A range of human actions or activities, all shaped by the intention to protect the environment or reduce its deterioration, besides the impact on the environment itself.
Steg and Vlek (2009, p. 309)	Behaviour that harms the environment as little as possible, or even benefits the environment.
Singh and Gupta (2013, p. 7)	The human behaviour regarding ecology that consciously seeks to minimise the negative impact of human actions on nature and build environment.
Zhang et al. (2014, p. 132)	The preventative action taken by individuals to protect the surrounding environment by empathising with nature and addressing environmental issues.
Lee and Jan (2015, p. 194)	Actions taken by persons or groups to reduce environmental problems to as great an extent as possible.

As can be seen from Table 2.8, most definitions are centred on human behaviours shaped by an intention to reduce or minimise negative impacts on nature and the environment. In addition to the term "pro-environmental behaviour", scholars have adopted various diverse terms to describe behaviours that protect the environment, such as "environmentally concerned behaviours", "environmentally responsible behaviours" and "ecological behaviours" (Lee, Jan, & Yang, 2013). Given that the term "pro-environmental behaviours" is widely used in tourism and social science research (e.g., Luo & Deng, 2007), this term will be adopted in this thesis.

Like the wider sustainability literature, studies of pro-environmental behaviours are usually discussed in three contexts: pro-environmental behaviours in the home, pro-environmental behaviours in the workplace and pro-environmental behaviours during travel. Some scholars have also compared pro-environmental behaviours at home with behaviours in a tourism context. The research indicates that individuals behave differently at home than in tourism settings.

The scope of general pro-environmental behaviour or specific pro-environmental behaviours at home varies. Most studies have focused on investigating a single pro-environmental behaviour, such as household waste disposal (e.g., Chi et al., 2014; Saphores, Ogunseitan, & Shapiro, 2012;

Tang, Chen, & Luo, 2011), energy conservation (e.g., Frederiks, Stenner, & Hobman, 2015; Martinez-Espineira, García-Valiñas, & Nauges, 2014), green purchasing (e.g., Moser, 2015; Trivedi, Patel, Savalia, Wright, & Harker, 2015; Wang, 2014) and green transportation (e.g., Jakovcevic & Steg, 2013; Steg, Bolderdijk, Keizer, & Perlaviciute, 2014; Waitt & Harada, 2012). Generally, pro-environmental research has focused on exploring the potential antecedents of the target behaviour. Although some researchers have reported that pro-environmental behaviours at home were a good predictor of pro-environmental behaviours while travelling (Wearing et al., 2002), other researchers have reported a discrepancy between the home context and the travel context (Dolnicar & Leisch, 2008; Fairweather, Maslin, & Simmons, 2005; Juvan & Dolnicar, 2014a). This highlights a need for further research on pro-environmental behaviours and the factors influencing these behaviours in the tourism context.

The pro-environmental behaviours of tourists have been largely studied within the context of nature-based tourism and ecotourism, with a strong emphasis on interpretation and behaviour change, both on-site and over the longer term (Ballantyne et al., 2011; Kim, Airey, & Szivas, 2011; Lee et al., 2013; Miller et al., 2015; Ramkissoon, Smith, & Weiler, 2013). Similar to the study of pro-environmental behaviours in the 'at home' context, the most commonly investigated pro-environmental behaviours in the tourism context are:

1. waste management (including recycling, littering, picking up litter) (e.g., Brown et al., 2010; Hughes, 2013; Miller et al., 2015);
2. green consumption (including purchasing green products and purchasing products with minimal packaging) (e.g., Hedlund, 2011; Hughes, 2013; Leonidou, Coudounaris, Kvasova, & Christodoulides, 2015);
3. transportation mode selection (e.g., Hughes, 2013; Juvan & Dolnicar, 2014b; Miller et al., 2015);
4. energy/water conservation (Han, 2015; Hughes, 2013; Zhang et al., 2015); and
5. choosing a green hotel (e.g., Chou & Chen, 2014; Moscardo & Lee, 2005; Zhang et al., 2015). Unlike studies of pro-environmental behaviours in the household context, most tourism scholars have investigated multiple pro-environmental behaviours (e.g., Hughes, 2013).

Moreover, rather than measuring actual or past behaviour, the majority of pro-environmental behaviour studies in the tourism context investigated behavioural intentions (Chou & Chen, 2014; Goodwin & Francis, 2003; Hedlund, 2011; Kang et al., 2012). These studies assume that intended behaviour is a good predictor of actual behaviour. However, there is increasing evidence that

intentions might not reflect actual behaviours (Carrington, Neville, & Whitwell, 2010; Hughes, 2013).

2.6.2 Measurement of pro-environmental behaviours

A majority of previous studies that examine actual environmental behaviours rely on self-reported questionnaires (Corral-Verdugo, 1997). Self-reports have the advantage of collecting a wide range information related to a variety of behaviours and are less time-consuming and more cost-effective than other methods (Bechtel, 1987; Paulhus & Vazire, 2007). In spite of the advantages, some researchers have indicated that self-reported measures lack the accuracy of observation studies of behaviour, as social desirability may lead individuals to overstate their behaviours (Michelson, 1987; Warriner, McDougall, & Claxton, 1984). However, some studies have reported that the influence of social desirability bias on self-reports was small (Lam & Cheng, 2002). Overall, while self-reported measured have been questioned, their validity and reliability depend on a range of different elements, such as the type of behaviours being assessed (Gatersleben, Steg, & Vlek, 2002).

Some scholars have indicated that self-reported measures of pro-environmental behaviours were adequate for measuring past behaviours. For example, Warriner et al. (1984) evaluated the reliability and validity of responses to a survey question about household energy consumption behaviour. The results indicated that self-reports were highly correlated with actual energy consumption behaviours. The use of self-reported measures also allow the number of missing observations to be reduced. Huffman, Van Der Werff, Henning, and Watrous-Rodriguez (2014) examined differences between the role of social influence and worldview on self-reported measures and observed recycling behaviour. Results showed a correlation between self-report and observed recycling behaviour, but the correlation was not strong. Furthermore, Corral-Verdugo and Figueredo (1999) compared three different measures of conservation behaviour: direct observation, frequency of reuse of the same products, and quantity of reuse self-reports. Results revealed a higher correlation between direct observation and self-reports than direct observation and frequency reports.

On the other hand, some authors have argued that there is a disparity between self-reported and observed behaviour. For instance, Corral-Verdugo (1997) investigated the reliability of self-reported conservation behaviour. A comparison between self-reported and observed measures indicated low correspondence between self-reports of conservation behaviours and observations of these practices. Chao and Lam (2011) found that the frequency of self-reported pro-environmental

behaviour was significantly higher than observed behaviours. A gap between verbal commitments (self-reports) and actual recycling behaviour was also reported in a study of a university campus in Hong Kong (Chung & Leung, 2007).

One potentially important cause of the inconsistency between self-reported and observed behaviour is social desirability bias (SDB). SDB refers to the basic human tendency to present oneself in the most favourable manner relative to social norms, a tendency that can significantly distort the information gained from self-reports (Fisher, 1993; King & Bruner, 2000). Respondents are often unwilling or unable to report accurately on specific topics, especially sensitive topics, due to self-deception and impression management issues (King & Bruner, 2000). Self-deception refers to personal threat and correlates positively with defence and coping measures, whereas impression management is characterised by socially desirable overt behaviours (i.e., self-regard motives) and correlates positively with falsehood measures (i.e., social approval motives) (Milfont, 2009).

SDB is considered to affect the validity of experimental and survey research findings in psychology and the social sciences (Fisher, 1993; King & Bruner, 2000; Milfont, 2009). Studies have indicated that impression management may be a concern for research on environmental issues, whereas self-deception has little relation to environmental issues (Milfont, 2009; Paulhus, 1991). Specifically, respondents tend to exaggerate positive environmental attitudes and pro-environmental behaviours (Milfont, 2009). Therefore, questions on environmental issues are believed to be strongly related to SDB (Beckmann, 2005).

Although scholars tend to assume that SDB affects responses to environmental research, only a few empirical studies have tested this effect. These studies have reported that the effect of SDB is low or even non-existent. Kaiser, Ranney, Hartig, and Bowler (1999) found that SDB was only marginally related to environmental attitudes, ecological intention and self-report ecological behaviours. They found no significant relationship between SDB and environmental values. Similarly, many other scholars found only marginally significant correlations between SDB and environmental attitudes and behaviours measures (Hartig, Kaiser, & Bowler, 2001; Schahn, 2002; Wiseman & Bogner, 2003). Others found no significant correlations between SDB and measurements related to environmental issues (Mayer & Frantz, 2004; Pato-Oliveira, Ros, Tróccoli, & Tamayo, 2004).

Most of this research was done in a Western context and the influence of SDB on Chinese respondents has not been well documented. Some research has concluded that respondents from collectivistic societies tend to show higher social desirability bias (e.g., Uskul & Oyserman, 2006).

This is explained as group conformity, face-saving and reduced willingness to provide accurate information to outgroup members (Uskul & Oyserman, 2006). Given the high value on face, harmony and group conformity, it is supposed that SDB will influence Chinese respondents to a certain extent. The impact of SDB on self-report pro-environmental behaviours is still a controversial issue and cannot be ignored in pro-environmental behavioural studies. Thus, SDB was tested in the present study as a control variable.

In summary, the discrepancy between self-reported measures and observations of pro-environmental behaviours typically includes measurement errors, such as social responsibility pressure and response bias (Chao & Lam, 2011; Corral-Verdugo, 1997). Therefore, "ways to collect valid and reliable measurements of self-reported conservation behaviour should be studied in detail" (Steg & Vlek, 2009, p. 310).

In order to gain more accurate results, some environmental behavioural research has used observation methods (e.g., Lam & Chen, 2006; O'Connor, Lerman, Fritz, & Hodde, 2010). However, observational methods also have weaknesses and limitations (e.g., time-consuming, inefficient for rare exposure and access issues) (Smart, Peggs, & Burridge, 2013). Considering the weakness of both methods, self-reported measures that control for SDB will be adopted in the present study to reduce missing data and increase the number of valid results.

2.6.3 Attitudes and pro-environmental behaviours

The relationship between attitudes and behaviour has been a debate for decades in psychology and sociology research (Eilam & Trop, 2012). The influence of attitudes on behaviours has been controversial. Some studies have failed to confirm the impact of attitudes on actual pro-environmental behaviours (e.g., Becken, 2004; Bergin-Seers & Mair, 2009; Juvan & Dolnicar, 2014a). Other studies have demonstrated that environmental attitudes can predict pro-environmental behaviours (e.g., Han, 2015; Tonglet, Phillips, & Read, 2004).

Tonglet, Phillips, and Read (2004) found that pro-recycling attitudes are the major contributor to recycling behaviour. Do Valle, Reis, Menezes, and Rebelo (2004) suggested the differences between recyclers and non-recyclers could be due to their specific attitudes toward recycling. Mostafa (2007) found that environmental attitudes play an important role in determining green purchasing behaviours. Additionally, positive attitudes toward recycling were found by Blok, Wesselink, Studynka, and Kemp (2014) to be important factors in explaining recycling behaviour. More

recently, Martinsson, Lundqvist, and Sundström (2011) investigated household energy-saving behaviour. Their results indicated that general environmental attitudes play a crucial role in determining household energy-saving.

Unlike pro-environmental behaviour in the home context, the majority of studies examining pro-environmental behaviours in tourism contexts have measured behavioural intentions. Hedlund (2011) investigated the impact of environmental attitudes and tourists' willingness to accept economic sacrifices to protect the environment as well as their intention to buy ecologically sustainable tourism alternatives. Significant positive relationships were found between environmental attitudes and the willingness to accept economic sacrifices to protect the environment, as well as between environmental attitudes and intention to buy ecologically sustainable tourism alternatives. Chen and Tung (2014) found that Taiwanese individuals' environmental attitudes were related to their willingness to visit green hotels when travelling. Similarly, Han (2015) examined U.S. travellers' pro-environmental behaviours in a green lodging context and found that environmental attitudes were related to pro-environmental behavioural intentions.

Thus, the research objectives generated from this section of the discussion is to test the relationship between: environmental attitudes and the pro-environmental behaviours of Chinese tourists (RO2); and Chinese Cultural Values and the pro-environmental behaviours of Chinese tourists (RO3).

The relationship between environmental attitudes and behaviour has also been studied in recreation and nature-based tourism contexts, as discussed in the next section.

2.6.4 Nature-based activity participation

Nature-based recreation refers to "activities that people undertake out of doors in places where they can access nature or green areas, mainly as part of their daily or weekend routines" (Bell et al., 2007, p. 6). Kerr (1991, p. 248) defined tourists who are involved in nature-based tourism activities as "people who require environmentally compatible recreational opportunities… where nature rather than humanity predominates".

Human and natural resources have become the core elements of tourism, on which tourism has increasingly depended (Cheng et al., 2011). Moreover, the human-nature relationship is a fundamental topic and a primary relationship in tourism and tourism research (Chen & Gursoy, 2001; Cheng et al., 2011; Huang, Zhang, & Deng, 2006). Nature-based outdoor activities that

involve hiking, camping, wildlife viewing, snorkelling and scuba diving offer a chance to escape from urban environments and busy work lives. Therefore, an increasing number of urbanites turn to active outdoor recreational travel to meet their need to reconnect with nature while escaping from their fast-paced lifestyles (Center for Responsible Travel, 2013).

There has been tremendous growth in the number of individuals participating in wildlife and nature recreational programs, with individuals having different motivations and purposes for experiencing nature-based outdoor recreational activities. While some individuals participate in wildlife and nature activities in support of environmental awareness, other individuals participate to satisfy their curiosity or simply to relax (Amante-Helweg, 1996). People are increasingly interested in participating in activities that involve wild animals. With the current trend towards animal and environmental awareness, people have become eager to experience wildlife and nature (Ballantyne, Hughes, Lee, Packer, & Sneddon, 2018)

Commonly pursued nature-based tourism activities vary across different tourism sites. For example, nature-based tourism activities include bushwalking, backpacking, wildlife viewing, camping and fishing. The study site used in this thesis (Moreton Island, Australia) offers whale watching, fish feeding, dolphin feeding and sand dune tobogganing (Packer et al., 2014). Many researchers have tried to classify nature-based recreational activities. Table 2.9 presents some of these definitions.

Table 2.9 Common classifications of outdoor recreational activities

Author (Year)	Categories
Dunlap and Heffernan (1975)	1) Consumptive (e.g., hunting and fishing) 2) Appreciative (e.g., hiking, camping and nature photography) 3) Abusive (e.g., all-terrain vehicle riding, snowmobiling and mountain biking).
Theodori, Luloff, and Willits (1998)	1) Appreciative to slight resource-utilisation activities (e.g., hiking, backpacking, camping, skiing, mountain biking and bird-watching) 2) Moderate-to-intensive resource-utilisation activities (e.g., hunting, fishing and riding off-road vehicles).
Tarrant and Green (1999)	1) Appreciative activities (e.g., day hiking, backpacking, nature/bird-viewing); 2) Consumptive activities (e.g., hunting and fishing) 3) Motorised activities (e.g., driving off-road four-wheel-drive vehicles and motor-boating).
Berns and Simpson (2009)	1) Appreciative 2) Consumptive 3) Combined (i.e., appreciative and consumptive).

Dunlap and Heffernan (1975) initially classified recreational activities into two categories: consumptive and appreciative outdoor recreational activities. Consumptive recreational activities

(e.g., hunting and fishing) were defined as those activities that involve "taking something from the environment and thus reflect a 'utilitarian' orientation toward it" (p. 19). Appreciative recreational activities (e.g., hiking, camping and nature photography) were defined as those activities that involve "attempts to enjoy the natural environment without altering it... thus remaining compatible with the 'preservationist' orientation which attempts to maintain the environment in its natural state" (pp. 19-20).

Previous research found that people's environmental attitudes significantly influence their participation in different types of nature-based outdoor recreational activities. This will be discussed and explored in the next section.

2.6.5 Attitudes and outdoor recreational participation

The majority of nature-based outdoor recreational studies have focused on investigating the relationship between environmental attitudes and participation in outdoor recreational activities. On one hand, studies have shown that past participation in nature-based outdoor recreational activities promotes the formation of positive environmental attitudes in the future (e.g., Asah, Bengston, & Westphal, 2012). On the other hand, some studies have found that existing environmental attitudes were positively related to outdoor recreational activity participation (e.g., Barker & Dawson, 2012). Only a few studies have examined the links between environmental attitudes and recreational activity preferences in a tourism context (e.g., Sievänen et al., 2005).

One of the earliest studies on the relationship between environmental attitudes and outdoor recreational participation was undertaken by Dunlap and Heffernan (1975). They proposed two main research questions:

1. Are environmental concerns or behaviours different between individuals who participate in outdoor recreational and individuals who do not participate in outdoor recreational activities?
2. Is the strength of this positive association different across types of outdoor recreational activities?

Dunlap and Heffernan found only weak support for the first research question, whereas the second research question received substantial support. Their findings suggested that the association between environmental attitudes and participation in outdoor recreation was stronger with appreciative activities than with consumptive activities.

Following Dunlap and Heffernan's (1975) work, other scholars have confirmed the positive relationship between environmental attitudes and outdoor recreational activity participation. Jackson found that people who participated in 'appreciative' outdoor recreational activities hold stronger positive environmental attitudes than people who participated in 'consumptive' activities or 'mechanised activities'. Van Liere and Noe's (1981) study also provided support for Dunlap and Herffernan's (1975) findings that all of the significant positive associations were with respect to appreciative activities. Tarrant and Green (1999) demonstrated that strong environmental beliefs were more likely to be held by outdoor recreational participants than by non-participants. Further, Eagles, Higgins, Lindberg, Wood, and Engeldrum (1998) found that those who hold positive environmental beliefs or attitudes are more likely to have a desire to learn and experience nature-based outdoor recreational activities. More recently, Barker and Dawson (2012) also confirmed that environmental attitudes influence outdoor recreational activity participation. Bjerke and Kleiven (2006) found that different types of recreational activities relate similarly to environmental attitudes. More specifically, both consumptive and appreciative activity participation are positively associated with environmental attitudes.

Despite the wide discussion of environmental attitudes and outdoor recreational activities participation, the boundary between research contexts is not very clear. Most studies on outdoor recreation activities were conducted in the context of routine daily life rather than contexts such as holidays where participants may be operating outside their normal daily routine. Whether or not similar relationships exist in travel contexts has yet to be tested.

Thus, the research objectives generated from this section of the discussion is to test the relationship between: environmental attitudes and Chinese tourists' nature-based activity participation (RO4); and Chinese Cultural Values and Chinese tourists' nature-based activity participation (RO5).

Despite the influence of nature-based activities participation on forming positive environmental attitudes, the positive impact of participating in nature-based activities on pro-environmental behaviours has been confirmed as well. Research indicates that people who are willing to engage in nature-based activities are more likely to take efforts to protect the environment (e.g., Larson, Whiting, & Green, 2011; Lee & Jan, 2015; Thapa, Graefe, & Meyer, 2005). However, the influence of nature-based activities participation on environmental behaviours has always been tested in daily life setting. Whether or not similar relationships exist in travel contexts should be examined as well.

Thus, the research objective generated from this discussion is to test the relationship between pro-environmental behaviours and Chinese tourists' nature-based activity participation (RO6).

2.7 Behavioural Theories

There are many theories that have been used to explore and explain environment-related behaviours. Three well-developed theories that have been used to better understand how social-psychological factors influence environmental behaviours are the Theory of Planned Behaviour (TPB), Value-Belief-Norm (VBN) theory and Value-Attitude-Behaviour (VAB) theory. Each of these will be discussed in the following sections.

2.7.1 Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB) is one of the most frequently applied rational choice models. TPB is a theoretical framework that explains an individual's decision-making process. The TPB was originally proposed by Ajzen (1985) and evolved as an expansion of the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975). The TRA proposed that, under volitional control, an individual's behaviour is determined by behavioural intention whilst behavioural intention is determined by subjective norms and attitudes toward the behaviour. However, the biggest limitation of the TRA is that behaviours do not always occur under volitional control. Therefore, (Ajzen, 1985) developed the TPB. The main difference between the TPB and TRA is the addition of a variable called 'perceived behavioural control', which refers to an individual's perceptions of the feasibility or difficulty of a specific behaviour (Ajzen & Madden, 1986).

The TPB suggests that behaviour is primarily guided by three beliefs: behavioural belief (individual's evaluation of the likely outcomes of the behaviour), normative belief (importance of social referents' attitudes toward the behaviour) and control beliefs (presence and control of factors that may motivate/impede the performance of the behaviour) (Ajzen, 1985; Curtis et al., 2010; Lee & Back, 2008; Perugini & Bagozzi, 2001). These three beliefs in turn influence the cognitive determinants underlying behaviours: attitudes toward the behaviour, subjective norms and perceived behavioural control. Unlike the TRA, the TPB incorporates both volitional and non-volitional dimensions (Ajzen, 1991; Lee & Back, 2008). It is argued that the inclusion of non-volitional dimensions can increase the theory's ability to predict an individual's intention and actual behaviours, as intentions and behaviours are not always under personal control (Han, 2015; Lee &

Back, 2008; Perugini & Bagozzi, 2001). The underlying assumptions of TPB are illustrated in Figure 2.3.

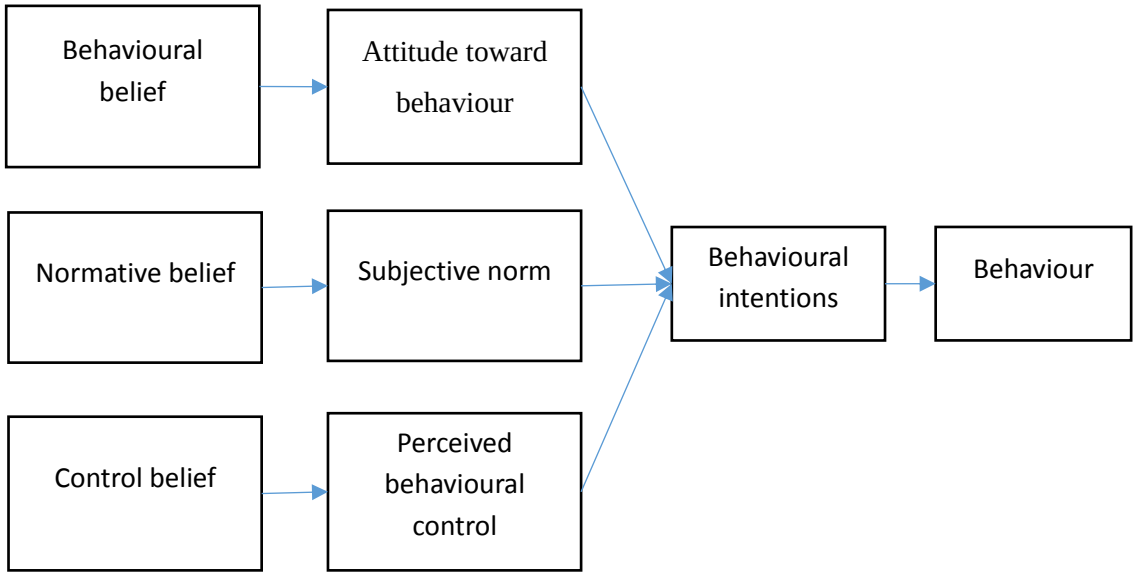

Figure 2.3 Theory of Planned Behaviour (Source: Ajzen, 1985)

Since the inception of the TPB, the theory has been applied in a large variety of contexts to explain behaviour , such as leisure participation (e.g., Ajzen & Driver, 1991) and health-related practices (e.g., Black & Babrow, 1991). Not surprisingly, the TPB has also been applied in many tourism contexts, such as wildlife conservation (Ham & Weiler, 2001; Hughes, 2013), international travel and destination choice (Chen & Gursoy, 2001; Jalilvand & Samiei, 2012; Lam & Hsu, 2004, 2006), formation of pro-environmental behavioural intentions (Chen & Tung, 2014; Han, 2015; Han, Hsu, & Sheu, 2010; Harland, Staats, & Wilke, 1999; Sparks, 2007), visitor behaviour in park and protected areas (Ajzen & Driver, 1991; Brown et al., 2010; Kim & Han, 2010; Lackey, 2003; Mamdouh, 2015; Powell & Ham, 2008) and residents' support for tourism (Nunkoo & Ramkissoon, 2010).

In addition to its application in tourism contexts, several studies have also used TPB to investigate pro-environmental behaviour in non-tourism contexts. One area related to the focus of the proposed study is household recycling behaviour (e.g., Cheung, Chan, & Wong, 1999; Davis, Phillips, Read, & Iida, 2006). Chan (1998) used the TPB to analyse recycling behaviour in Hong Kong, China. The results indicated that personal attitudes toward recycling were the most important determinants of pro-environmental behaviours, whilst the influence of perceived control and social norms were not

significant. Similarly, Tonglet, Phillips, and Bates (2004) and Tonglet, Phillips, and Read (2004) found that attitudes were major determinants of recycling behaviour. However, Tucker's (1999) study of household waste recycling in the UK demonstrated that social norms were an influential factor in predicting recycling behaviour. Barr's (2003) study of curbside recycling behaviour in the UK also found that social norms were important.

Despite considerable support for its use, there has been no shortage of criticism of the TPB model. Firstly, it has been argued that the TPB does not adequately explain pro-environmental behaviour unless the respondents' past experience of the behaviour and their perception of its consequences were also incorporated in the model (Tonglet, Phillips, & Read, 2004). Secondly, the TPB theory has limited predictive validity. More specifically, an intention does not always lead to subsequent action (Bamberg, 2003; Davis, Challenger, Clegg, & Healey, 2008; Sniehotta, Presseau, & Araújo-Soares, 2014). Thirdly, the mediation assumptions in the TPB have also been criticised because other antecedent variables (e.g., beliefs) are often found to predict behaviour over and above intentions (Araujo-Soares, Rodrigues, Presseau, & Sniehotta, 2013; Conner, Godin, Sheeran, & Germain, 2013).

Thus, the model does not fully explain environmental behaviours because the theory overlooks other important variables, such as the end-state variable of values. As a result, this discussion will now move to other theories that deserve consideration.

2.7.2 Value-Belief-Norm theory (VBN)

Schwartz (1977) developed a norm-activation framework, which was originally used to investigate altruistic intention and behaviour in a pro-social context. In contrast to the TPB, which is essentially a general behavioural theory, norm-activation theory was developed especially for altruistic intention and behaviour (Klöckner, 2013). Figure 2.4 illustrates the norm-activation framework.

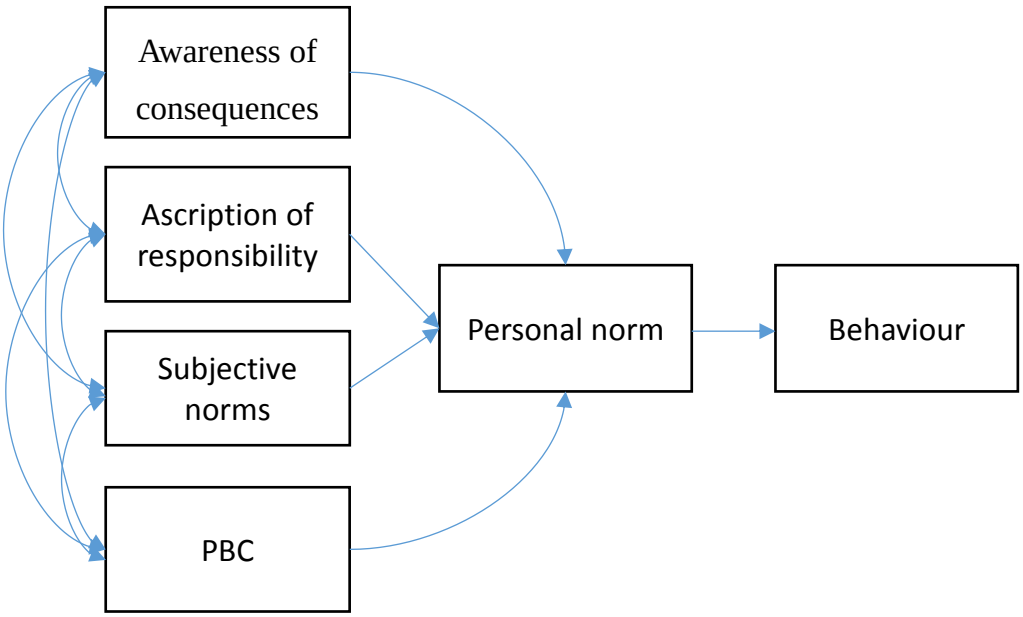

Figure 2.4 Norm-Activation framework (Source: Schwartz, 1977)

As illustrated in Figure 2.4, Norm-Activation theory proposed three major variables to explain the relationship between pro-social intention and behaviour; namely, awareness of consequences, the ascription of responsibility and personal norms (Schwartz, 1977). Although the theory was developed to predict altruistic intention and behaviour, it also successfully explained a variety of environment-related behaviours (Cordano, Welcomer, Scherer, Pradenas, & Parada, 2011; Guagnano, Stern, & Dietz, 1995; Steg et al., 2011).

Stern et al. (1999) built on the work of Schwartz and others to develop the Value-Belief-Norm (VBN) theory. The VBN theory links a person's ecological worldview (New Environmental Paradigm) (e.g., Dunlap et al., 2000) and value theory (Schwartz, 1992) with norm-activation theory (e.g., Schwartz, 1977). The theory, which is considered to be an extension of norm-activation theory, provides a better predictor of pro-environmental intention and behaviours as it is particularly designed to examine pro-environmental behaviour. Unlike the TPB and the norm activation model, the VBN considers several essential concepts in environmentalism, such as values and ecological worldview (Oreg & Katz-Gerro, 2006).

Value-Belief-Norm theory proposes a chain model where "pro-environmental behaviours stem from the acceptance of particular personal values, from beliefs that things important to those values are

under threat and from beliefs that actions initiated by the individual can help alleviate the threat and restore the values" (Oreg & Katz-Gerro, 2006, p. 464). Figure 2.5 shows the causal relationship among values, beliefs, pro-environmental personal norms and behaviours.

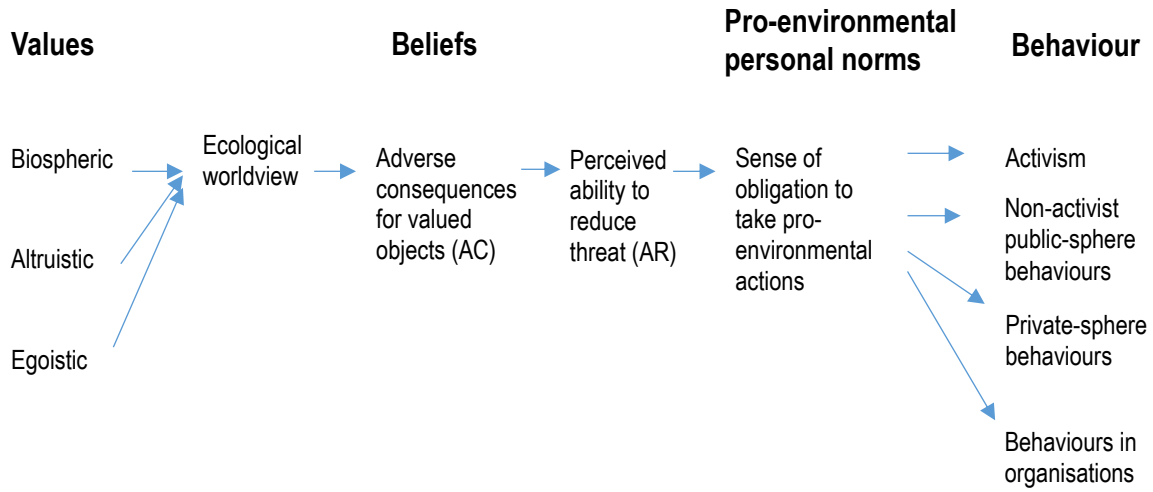

Figure 2.5 Value-Belief-Norm Theory (Source: Stern, 2000a)

As can be seen from Figure 2.5, the chain model directly links the five antecedents of environmental behaviours; values, ecological worldview, adverse consequences for valued objects, perceived ability to reduce the threat and personal norms (Stern, 2000a). VBN theory assumes that pro-environmental behaviours are determined by pro-environmental personal norms, which in turn are activated by a sequential process of values, attitudes, awareness of consequences and ascription of responsibility (Stern, 2000a).

In VBN theory, the role of values and environmental worldview is emphasised. The general values are classified into three dimensions based on Schwartz (1994)'s value system: altruistic values (focus on the welfare of others), biospheric values (concern for the non-human aspect of the environment) and egoistic values (focus on one's own welfare) (Stern, Dietz, & Kalof, 1993). Unlike egoistic values, both altruistic and biospheric values have been linked with environmental concern (Klöckner, 2013). In some pro-social studies, there is no distinction or difference between altruistic values and biospheric values, as both values are used to predict concern for others (including human beings and nature) (Klöckner, 2013). Nevertheless, biospheric values should be separated from altruistic values in environment-related research as they are specifically designed for measuring values toward the environment (Klöckner, 2013). It has been proposed that individuals who demonstrate high biospheric values are more likely to be concerned about environmental problems (Stern, 2000a).

The Value-Belief-Norm theory has been successful in explaining a range of behaviours, including: the role of the multinational corporations in ecological sustainability (Andersson, Shivarajan, & Blau, 2005), social movements (Stern et al., 1999), energy conservation (Ibtissem, 2010), consumer adoption of high involvement eco-innovation (Jansson, Marell, & Nordlund, 2011), travellers' pro-environmental behaviour in green lodging (Han, 2015), pro-environmental behaviour in a marine context (Wynveen et al., 2015), pro-environmental behaviour across nationalities (Oreg & Katz-Gerro, 2006) and conservation behaviour (Kaiser, Hübner, & Bogner, 2005).

Despite the wide use of Value-Belief-Norm theory in a variety of research domains, several limitations have been identified. Firstly, VBN theory typically assesses an individual's ecological worldview by using the New Environmental Paradigm (NEP) scale, which has been criticised by many scholars. The most noted weaknesses of the original NEP included the use of outdated items (e.g., Lalonde & Jackson, 2002) and a lack of cross-cultural validity (e.g., Hawcroft & Milfont, 2010). Secondly, VBN theory is normally implemented by using compound measures addressing specific types of pro-environmental behaviours (Kaiser et al., 2005), such as car-use reduction (Jakovcevic & Steg, 2013) and energy conservation (Ibtissem, 2010). Thirdly, VBN theory fails to take into account the effects of attitudes, which are captured by the Theory of Planned Behaviour (Casper, Pfahl, & Ebooks, 2015).

Value-Belief-Norm theory is complementary to Ajzen's (1991) Theory of Planned Behaviour. VBN theory suggests that an individual's values and interactions with the environment can help predict pro-environmental behaviours, whilst the TPB proposes that attitudes, subjective norms and perceived behavioural control affect behavioural intentions, which in turn influence behaviours. Kaiser et al. (2005) provided a useful comparison of both theories. However, neither of these approaches measure values and attitudes concurrently in the same model.

To conclude, although both VBN theory (Stern, 2000a) and TPB (Ajzen, 1991) have been widely used to address environment-related behaviours in diverse research domains, they fail to address the relationship among values, attitudes and behaviours. Therefore, Value-Attitude-Behaviour has been proposed and is discussed in the next section.

2.7.3 Value-Attitude-Behaviour theory (VAB)

A Value-Attitude-Behaviour (VAB) hierarchy was first proposed and tested by Homer and Kahle (1988). The VAB framework attempts to integrate the relationships between values, attitudes and

behaviours. The framework proposes a hierarchical influence of cognition where the flow is from values (i.e., abstract cognitions) to attitudes (i.e., mid-range cognitions) and on to specific behaviours (i.e., outcomes). Hence, the framework can be visually depicted as a causal sequence:

Value → Attitude → Behaviour.

This sequence proposes that values have a strong causal influence on attitudes, which in turn influence subsequent behaviours. Additionally, the framework suggests that values can influence behaviours both directly and indirectly through attitudes. The VAB framework emphasises the mediating role of attitudes on the relationship between values and behaviours.

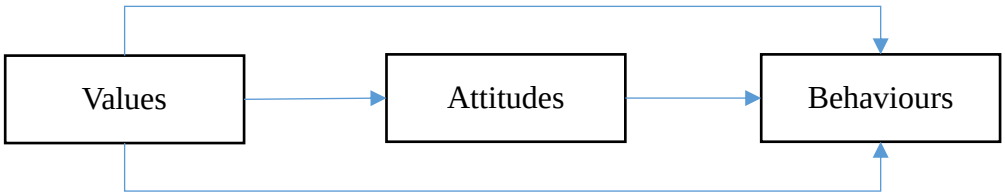

Figure 2.6 Value-Attitude-Behaviour framework (Source: Homer and Kahle, 1988)

The VAB framework was originally developed from social adaptation theory (Kahle & Homer, 1985), a theory in which values are considered as a type of social cognition that facilitates adaptation to one's environment. "Values are similar to attitudes in that both are adaptation abstractions that emerge continuously from the assimilation, accommodation, organisation and integration of environmental information to promote interchanges with the environment favourable to the preservation of optimal functioning" (Homer & Kahle, 1988, p. 638). As the most abstract of the social cognitions, values reflect the most basic characteristics of adaptation. Thus, values serve as prototypes from which attitudes and behaviours are subsequently manufactured. Attitudes and behaviours may evolve over time, but values represent a set of more stable life beliefs (Paulssen et al., 2014).

The Value-Attitude-Behaviour sequence has been tested and applied in several consumer behaviour studies. For example, Jayawardhena (2004) found that personal values were related to positive attitudes about e-shopping. Individuals' e-shopping behaviour was directly influenced by their attitudes toward e-shopping, with attitudes mediating the relationship between values and actual behaviour. Moreover, Fu, Koo, and Kim (2014) researched US consumers' attitudes and behaviours

toward a Chinese-inspired product and consequently confirmed the VAB hierarchy. More specifically, the results indicated that global values positively influenced domain-specific values and attitudes, which in turn affected consumer behaviours. In addition to purchasing behaviour, the VAB framework has also been used in research on travel mode choice (Paulssen et al., 2014). Values like power, hedonism and security were found to affect individual attitudes toward flexibility, comfort and convenience and ownership, which in turn influenced the choice of travel modes. However, no significant direct relationship was found between values and choice of mode.

The Value-Attitude-Behaviour framework has also been applied in research on environmental issues. For instance, Vaske and Donnelly (1999) study of 'wild land' preservation voting intentions confirmed the VAB sequence. A structural equation analysis demonstrated that a biocentric/anthropocentric values orientation continuum predicted respondents' attitudes toward wild lands preservation. Samarasinghe (2012) investigated the effect of Sri Lankan consumers' cultural values and environmental attitudes on green consumer behaviour. The results confirmed a high correlation between cultural values and environmental attitudes; however, a negative relationship was found when testing the influence of environmental attitudes on green consumer behavioural intentions. That is, the results did not fully support the VAB sequence. Samarasinghe (2012) argued that environmental issues are complicated and that people from developing countries may not prioritise environmental issues.

This review demonstrates that the hierarchical influence of values, attitudes and behaviours has been studied in a variety of research areas, such as consumer choice of product categories (Allen, Hung Ng, & Wilson, 2002), e-shopping behaviour (Jayawardhena, 2004), choice of travel mode (Lee & Jan, 2015; Paulssen et al., 2014) and environmental behaviours (Samarasinghe, 2012). However, very few studies have applied this model to tourism research contexts and none have used this model in an outbound tourism context. Furthermore, with the exception of Samarasinghe's (2012) study, the model has not been widely used beyond Western consumer contexts.

There are two main reasons for testing the model with a non-Western culture in an environmentally sustainable tourism context. Firstly, sustainable tourism (especially environmental sustainability) has become a focus of tourism research and practice. The development of environmentally sustainable products, practices and experiences is beneficial for both tourism destinations and local communities. It is therefore important to examine environmental behaviours and their antecedents. Secondly, the dramatic growth of outbound tourists from Asian countries puts additional pressure on destinations. The need to manage the impacts of this growth creates new opportunities for

researching how cultural variables influence environmentally sustainable behaviours in tourism contexts.

The Value-Attitude-Behaviour framework was adapted and applied in the present study to explain the causal relationship between values and attitudes, values and behaviours, and attitudes and behaviours. Although the VAB sequence has been tested by many scholars, it has yet to be used to explain the values, attitudes and environmental behaviours of Chinese visitors.

Thus, the research objective generated from this section of the discussion is to explore whether environmental attitudes mediate the relationship between Chinese Cultural Values and environmental behaviours (RO7).

2.8 Key themes and research opportunities

The previous sections discussed the growth and development of sustainable tourism and Chinese outbound tourism. The growth of the Chinese market is notable and has resulted in a growing interest in Chinese outbound tourists' potential impact on the environment. As a result of the growing Chinese outbound tourism market, the impact of large numbers of Chinese outbound tourists on destinations cannot be ignored. Values and attitudes have been found to play an important role in influencing environmental behaviours. Therefore, it is argued that to fully understand and influence the behaviour of Chinese tourists in natural environments we need to explore the relationship between Chinese cultural values, their environmental attitudes and their environmental behaviours

After reviewing the relevant literature, the following shortcomings and limitations are apparent:

1. Values have been considered as key to predicting environmental behaviours and nature-based activity participation. While an increasing number of studies have emphasised the influence of values on behaviours, there is a lack of consensus on the best way to measure Chinese cultural values.
2. Environmental attitudes frameworks are well established and have been developed with Western populations but have rarely been applied to Chinese populations.
3. Although the VAB framework has been well established in the environmental psychology

context, it has never been tested in a tourism context.

4. The majority of previous studies on tourists' pro-environmental behaviours have focused on behavioural intentions rather than self-reported behaviours.
5. There is a lack of knowledge of Chinese tourists' environmental behaviours and the antecedents of those behaviours.

Understanding why some Chinese visitors choose to engage in pro-environmental behaviours when traveling and why they participate in nature-based activities during their trip is critical to destination managers' efforts to protect the natural environment and influence the on-site and long-term environmental behaviour of Chinese visitors.

2.9 Conceptual framework

The present research seeks to address the shortcomings listed in section 2.8 by investigating the causal relationship between Chinese cultural values, Chinese tourists' environmental attitudes and their environmental behaviours. The research was underpinned by the conceptual framework presented in Figure 2.8. Based on the Value-Attitude-Behaviour theory, the model proposes that Chinese cultural values influence Chinese tourists' environmental attitudes, which in turn influence their behaviours (i.e., pro-environmental behaviours and nature-based activity participation). The relationship between two behaviours (i.e., pro-environmental behaviours and nature-based activity participation) will also be examined. Moreover, it should be noted here that although the direct influence of values on behaviours tends to be small, values may also directly relate to behaviours (Schultz et al., 2005). Thus, the direct influence of Chinese cultural values on environmental behaviours will also be tested.

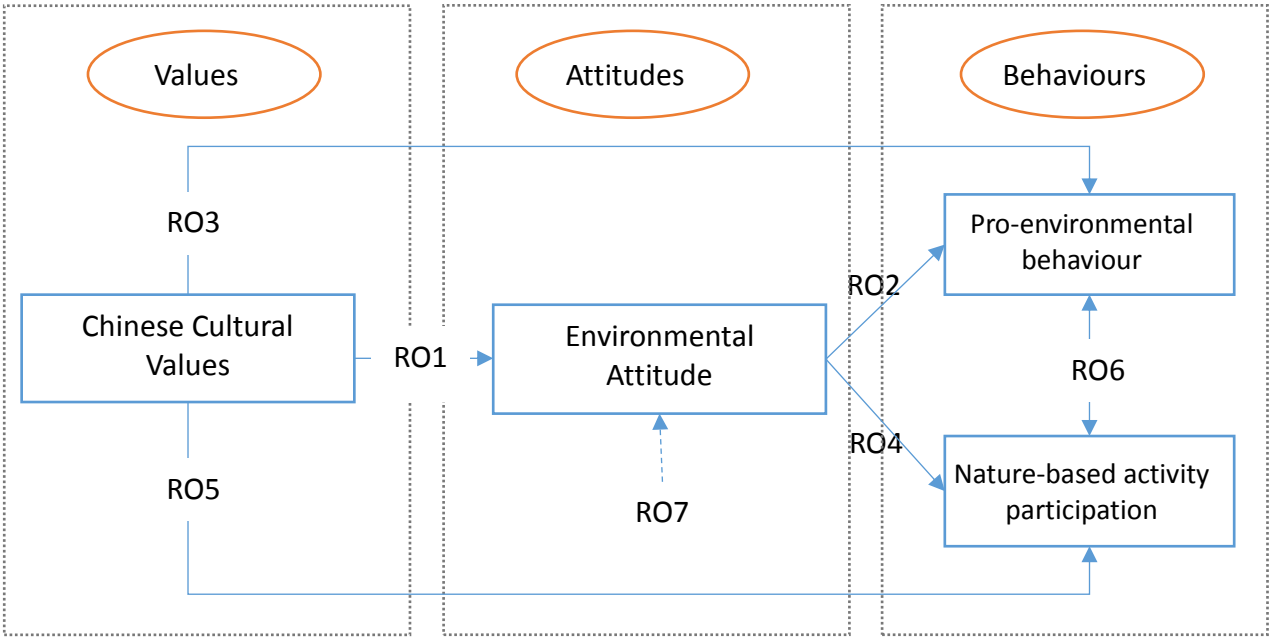

Figure 2.7 The conceptual framework of the thesis based on the Value-Attitude-Behaviour model

In the present study, environmental behaviours are classified into two parts—pro-environmental behaviours and nature-based activity participation. It should be noted here that a variety of studies have shown a discrepancy between behavioural intentions and behaviours (Barr, Gilg, & Ford, 2005; Hughes, 2013), which some researchers have called the intention-behaviour gap (Tudor, Barr, & Gilg, 2007). Therefore, the present research aims to isolate social-psychological determinants of actual behaviour (reported after the visit), rather than behavioural intentions.

The conceptual framework for the present research is particularly concerned with Chinese cultural values. The widely-used dimensions of values in the VAB were developed based on Schwartz's (1994) Western-based value scales. Chinese cultural values are quite different from Western values. As discussed, Chinese cultural values have been overlooked and underutilised by scholars trying to understand Chinese people's behaviour. Typically, researchers have used Western values systems to measure Chinese people's values, which is considered to be a mismatch. One of the research objectives of the current study, therefore, is to investigate the relationship between Chinese cultural values and environmental behaviour and identify the Chinese cultural values that relate to attitudes toward environment, nature and animals.

Like most previous research (e.g., Hughes, 2013; Miller et al., 2015), multiple pro-environmental behaviours are tested in this study. Tourists engage in multiple activities which may generate multiple pro-environmental behaviours in travel; thus, it is insufficient to look only at a single pro-

environmental behaviour when studying behaviour in a tourism context. Additionally, combining these different types of pro-environmental behaviours has never been undertaken in a study using VAB theory. In the current study, measuring these behaviours on a single index may provide a more powerful assessment of a broader range of pro-environmental behaviours than only measuring one single type of behaviour.

In addition to the multiple pro-environmental behaviours, multiple nature-based activities are tested in the present study. Tourism sites usually comprise a variety of nature-based activities; consequently, measuring multiple nature-based activities can provide a more powerful assessment of the impact of values and attitudes on behaviour. Details regarding the selection of nature-based activities are discussed in Chapter 3.

Based on the literature discussed to this point, seven research objectives have been developed. The research objectives of the two phases are to test the relationships between:

- **RO1:** Chinese Cultural Values and the environmental attitudes of Chinese tourists.
- **RO2:** Environmental attitudes and the pro-environmental behaviours of Chinese tourists.
- **RO3:** Chinese Cultural Values and the pro-environmental behaviours of Chinese tourists.
- **RO4:** Environmental attitudes and Chinese tourists' nature-based activity participation.
- **RO5:** Chinese Cultural Values and Chinese tourists' nature-based activity participation.
- **RO6**: Pro-environmental behaviours and Chinese tourists' nature-based activity participation.

and to

- **RO7**: Explore whether environmental attitudes mediate the relationship between Chinese Cultural Values and environmental behaviours.

2.10 Conclusion

This chapter has reviewed relevant research on sustainable tourism, Chinese outbound tourism, cultural values, environmental attitudes and pro-environmental behaviours. It has argued that Chinese cultural values are different from Western cultural values and that different measures are needed. Moreover, after reviewing the literature on environmental attitudes, it has also been found that widely used environmental attitude measurements are lacking in cross-cultural validity. In

addition, existing research on Chinese outbound tourism has overlooked the benefits of incorporating pro-environmental behaviours and outdoor recreational participation into one study. Justifications for employing Value-Attitude-Behaviour theory to understand how Chinese tourists' values influence their environmental attitudes and environmental behaviours have been provided. A conceptual framework was presented and research objectives specified. The methodology used in the present study is explained in Chapter 3.

Chapter 3 Methodology

3.1 Introduction

This chapter discusses the methodology used to examine the research objectives outlined in the previous chapter. Firstly, the chapter clarifies the research paradigm and the philosophical positioning of this research. Secondly, a detailed three-phase research design is described. Thirdly, this chapter presents a detailed discussion of the research methods adopted for three interrelated studies, including the research design, sampling, measurement of constructs and data collection procedures. Fourthly, the chapter elaborates on the validity and reliability issues of this research.

3.2 Research paradigm

The research paradigm reflects the way the researcher views the world and in turn influences the strategy and methods chosen for the research (Creswell, 2014; Neuman, 2011). According to Saunders, Thornhill, and Lewis (2007), the paradigm adopted is influenced by the researcher's view of the relationship between knowledge and the way the research should be conducted. That is, a paradigm is the theory that guides the way we do things and it is a necessary step in regards to the choice of research methods, instruments and research analysis of both quantitative and qualitative data (Babbie, 2010; Guba & Lincoln, 1994). The terms paradigm, methodology and method need to be distinguished (Jennings, 2010). While a paradigm is a worldview that one holds, a methodology is a set of guidelines for conducting research within a paradigmatic view of the world. The method refers to specific ways of collecting data and/or empirical materials. These differences are illustrated in Table 3.1.

Table 3.1 Summary of terms and their definitions

Term	Definition
Paradigm	A set of beliefs
Ontology	The nature of reality
Epistemology	The relationship between the researcher and the participants/subjects/objects
Axiology	Values, ethics and associated ethical practice
Methodology	A set of guidelines for conducting research
Method	The tools for empirical material/data collection and interpretation, (re)construction/analysis

Adapted from Jennings (2010)

The selection of a research design is informed by four aspects; ontology, epistemology, axiology and methodology (Crotty, 1998; Sarantakos, 2005). This includes determining epistemological beliefs, selecting an appropriate theoretical perspective or philosophical stance, choosing a suitable methodology and selecting a set of methods to collect and analyse data (Crotty, 1998). *Ontology* refers to the nature of reality assumed by the researcher, which is the foundation of research. *Epistemology* reflects the relationship between the researcher and the phenomenon being studied, including research subjects, objects, text units or participants. *Axiology* is the philosophical study of nature, types and criteria of values. It mainly focuses on two kinds of values: ethics (i.e., the concepts of "right" and "good") and aesthetics (i.e., the concept of "beauty" and "harmony"). Additionally, it answers three questions: (1) How is knowledge valued? (2) What type of knowledge is valued? (3) How do values influence the research process? The *methodology* is the way by which knowledge and understanding are established. It guides the research and explains how inquirers collect and go about finding knowledge from the world. The ideal choice of methodology should be consistent with the ontological and epistemological perspectives used (Bryman, 2012; Creswell, 2014; Guba, 1990; Jennings, 2010; Ponterotto, 2005; Veal, 2011).

Ontology, epistemology, axiology and methodology are informed by research paradigms. Research paradigms can be broadly organised into the four classifications shown in Table 3.2.

Table 3.2 An overview of paradigms and their elements

Item	Positivism	Post-positivism	Constructivism	Pragmatism
Ontology	Universal truths and laws/singular reality	Fallible truths produced by social and historical circumstances	Multiple realities	Singular and multiple realities
Epistemology	Objective	Objective but subject to research bias	Closeness	Practicality
Axiology	Knowledge is propositional and of intrinsic value	Unbiased/ knowledge is propositional and of intrinsic value	Biased	Multiple stances
Methodology	Quantitative /Experimental	Primarily rely on quantitative; may use some qualitative	Qualitative/ inductive	Combining/ mixed methods

Adapted from Jennings (2010)

In the past, the dominant research paradigm in social science research was positivism. "Positivism is grounded in the physical sciences and this paradigm 'views' the world or reality as very organised or structured and based on rules that guide actions in both the natural and the social world" (Jennings, 2010, p. 36). However, over time, other paradigms have emerged to challenge this view.

The ontological, epistemological, methodological and axiological approaches of these paradigms are different from positivism.

A post-positivist research paradigm grounds the current study. Post-positivism contends that truth can only be improbabilistically known. Post-positivism is a critique and amendment of the positivist view of the world and nature as being guided by universal laws and truths that explain the behaviour or phenomenon through a causal relationship (Creswell, 2014; Jennings, 2010). Guided by the post-positivist worldview, this study sets out to explore the relationship between values, attitudes and behaviours by using existing methods. Consistent with a post-positivist stance, it is acknowledged that there are no absolute causal relationships among the variables examined in the study, although certain patterns may be evident.

Consistent with the post-positivist view of the world —"causes probably determine effects or outcomes" (Creswell, 2014, p. 245)—this study investigates how Chinese tourists' values influence their environmental behaviours, including pro-environmental behaviour and participation in nature activities. Additionally, post-positivist research usually starts with a theoretical foundation to develop the hypotheses and conceptual model. Data are then collected to test and confirm the hypotheses and to further develop the existing theory (Saunders et al., 2007).

Research questions were formulated by consulting established theories and the analysis was guided using an existing model and concepts. This study employs Value-Attitude-Behaviour Theory (Homer & Kahle, 1988) to understand the causal relationship between values, attitudes and tourists' behaviours. Post-positivism typifies the nature of the current research problem; thus, a post-positivist stance is adopted to explain how cultural values influence Chinese tourists' environmental behaviours, which are mediated by their attitudes toward the behaviour.

3.3 Research design

Since the study is grounded in a post-positivist research paradigm, a mixed methods approach relying primarily on a quantitative research method combined with some qualitative components was adopted.

The main aim of this study is to investigate the relationships among Chinese cultural values, environmental attitudes and behaviours based on Value-Attitude-Behaviour Theory. The main reason for using a quantitative method was to measure responses in a way that would allow for relationships to be statistically tested. Furthermore, the pro-environmental behaviours to be

measured in this study are usually performed in private rather than in public (e.g., actions associated with saving water such as brushing teeth and taking showers). Therefore, the use of qualitative methods was considered to be ineffective. Instead, this study relies primarily on quantitative data collected using a self-administered questionnaire.

This study consisted of a pilot study and two phases of data collection (Table 3.3). The first phase involved an onsite study of Chinese tourists visiting a nature-based destination in Queensland, Australia. The aim of the onsite study was to test the value-attitude-behaviour model at a major tourist site. The second phase included an online survey of Chinese consumers who had recently travelled overseas. The aim of the online study was to further explore the relationship between Chinese tourists' values, environmental attitudes and environmental behaviours with a broader sample of Chinese respondents. Each of these phases are described in further detail below.

Table 3.3 Data collection procedure

	Pilot study	**Phase One: Onsite study**	**PhaseTwo: Online study**
Aims	To test validity and reliability of the four Chinese values scales	To pilot test the relationship between values, attitudes and environmental behaviours at a tourism site. To explore why visitors are not participating in certain behaviours/ activities	To explore the relationship between the values, attitudes and environmental behaviours of Chinese people who had recently travelled overseas
Data collection method	Onsite (university) and Online (Qualtrics)	Onsite printed questionnaire at Tangalooma	Online panel survey
Participants	Chinese students (Undergraduate/Postgraduate) and Chinese people with other occupations	Chinese overnight visitors	Chinese overseas visitors
Sample size	165	505	809
Data collection	Questionnaire	Questionnaire	Questionnaire
Data analysis	Exploratory Factor analysis; Cronbach's alpha analysis	Exploratory Factor Analysis; Regression Analysis	Exploratory Factor Analysis; Correlation Analysis; Regression Analysis; Mediation Analysis

It should be noted here that exploratory factor analysis was used in both the pilot study and the onsite and online studies. In the scale evaluation study, factor analysis was used to reduce the number of value items and value factors; in the onsite and online studies, it was used to identify the dimensions of values.

3.4 Pilot study

The main aim of the pilot study was to test the reliability and construct validity of four widely discussed Chinese cultural values scales. As observed in the previous chapter, several Western cultural value scales have been developed and tested by scholars but there are very few studies that focus on the measurement of Chinese cultural values.

3.4.1 Research Instrument

The self-reported survey questionnaire used in this study consisted of two parts (see Appendix 11). Part I was designed to test four different Chinese cultural value scales. Part II collected participants' personal information, including age, gender and home city to obtain an overall understanding of the sample.

The specific measures that were tested in the scale evaluation survey were identified from the literature. The questionnaire focused on the four Chinese cultural value scales presented in the literature review.

Chinese Culture Connection's Value Survey.

The first scale (Value scale 1) replicated the items used in the Chinese Values Survey by the Chinese Culture Connection (1987). This scale is one of the earliest cultural value scales developed specifically for the Chinese population. It includes 40 value items that are central to the Chinese way of life (Chinese Cultural Connection, 1987; Hsu and Huang, 2016). The 40 items are classified into four dimensions: integrity and tolerance; Confucian ethos; loyalty to ideals and humanity; and moderation and moral discipline. Examples of statements include: 'Filial piety' (integrity and tolerance), 'loyalty to superiors' (Confucian ethos), 'Observation of rites and social rituals' (loyalty to ideals and humanity) and 'Repayment of good or evil of others' (moderation and moral discipline) from each of the four dimensions respectively.

Zhang's Value Survey.

The second scale (Value scale 2) that was included was Zhang's (2005a) Chinese Cultural Values Scale. This scale consists of items categorised into the three major dimensions and eight sub-dimensions: Confucian values (fit between behaviour and social status, family reputation, listen to others), Daoist values (admiring nature, harmony with nature) and Buddhist values (karma, luxury

useless, belief in fate). Examples of statements include: ‘An individual’s consumption level should be consistent with their social status’ (fit between behaviour and social status), ‘A woman should wear makeup to please her husband’ (family reputation). ‘The advice of my mentors is very important to me’ (listen to others), ‘I admire natural beauty’ (admiring nature), ‘Harmony will be achieved spontaneously if everything evolves naturally’ (harmony with nature), ‘If you are kind in life, you will be rewarded in a future world’ (karma), ‘Luxury goods are useless’ (luxury useless) and ‘I believe in fate’ (believe in fate). These examples relate to each of the eight dimensions respectively.

Yau’s Value Survey.

The third scale (Value scale 3) was taken from Yau’s (1988) inventory of values. Five dimensions are used to measure Yau’s (1988) Chinese cultural value orientations: man-to-nature, man-to-himself, relational, time and personal activity (Chan, Hutchings, & Zhu, 2007). Examples of statements include: ‘contentedness with and acceptance of who you are’ (man-to-nature), ‘adaptability to different situations’ (man-to-himself), ‘loyalty to the person or people you work for’ (relational), ‘respect for tradition’ (time), and ‘moderation in all things’ (personal activity) from each of the five dimensions respectively.

Hsu and Huang’s Value Survey.

The final scale (Value scale 4) was developed from Hsu and Huang’s (2016) qualitative work on Contemporary Chinese Cultural Values. This scale consisted of items grouped into three dimensions: instrumental values (desired character traits), terminal values (life pursuits) and interpersonal values. Unlike other Chinese cultural value scales, this scale included both traditional and contemporary Chinese cultural values, which are more relevant to the modern Chinese society (Hsu & Huang, 2016). Examples of statements include: ‘Confidence’ (instrumental values), ‘Convenience’ (terminal values) and ‘Conformity’ (interpersonal values).

A seven-point scale ranging from strongly disagree to strongly agree was used for all values items. It has been suggested in the psychometric literature that 7-point scales create a more accurate measure of participants’ true evaluation and have fewer measurement errors than 5-point scales and 11-point scales (Finstad, 2010; Joshi, Kale, Chandel, & Pal, 2015). Diefenbach, Weinstein, and O'Reilly (1993) investigated a range of Likert items, including 2-point, 5-point, 9-point, 11-point, 12-point and 100-point (i.e., percentage) varieties. The results revealed that 7-point items produced among the best direct ranking matches and were reported by participants as being the most accurate and the easiest to answer. Additionally, Dawes (2008) found that, while use of 5-point and 7-point

scales resulted in the same mean score, use of a 10-point scale produced much lower mean scores (Dawes, 2008). Furthermore, Finstad (2010) indicated that adding scale points provides a rapid increase in reliability; but, there is a diminishing return after 11 points. A seven-point scale tends to provide a good balance between having enough points of discrimination and having too many response options. Furthermore, most value-related research has used 7-point scales (e.g., Chen, 2015; Han, 2015; Johansson, Rahm, & Gyllin, 2013).

3.4.2 Sampling

Non-probability convenience sampling methods were adequate for the scale evaluation research phase because the focus of the current study was on scale evaluation and validity rather than multivariate analysis of the data. The advantages of convenience sampling are accessibility, ease of measurement and cooperation (Jennings, 2010; Malhotra, 2010). Thus, non-probability convenience sampling increases the ease of application and reduces cost. The sample has a temporal frame, which means the sample only reflects the study units convenient to the researcher at the time the data were collected.

Face validity of the survey was initially pilot-tested with a group of Chinese tourism PhD students enrolled at the University of Queensland. Only a few minor changes were made after the pilot test (e.g., spelling errors and format of the survey). Following this, Chinese participants were recruited in undergraduate and postgraduate lectures delivered at the university's St Lucia campus. Students were asked to complete the scale evaluation survey in class to maximise the response rate. A participant information sheet (see appendix 12) was provided before the data collection. The aim of this scale evaluation survey was to test the validity of existing scales rather measure the general characteristics of a specific population. According to Stevens (2011, p. 19), "if invariant relationships are presumed to hold regardless of the population or specific methodology, student samples are not inherently better or worse than any other potential samples". Thus, university students were thought to be suitable for achieving this aim. It should be noted here that the questionnaire was presented in English. As the sample was Chinese students studying at an English university, it was assumed that they had the ability to read and understand surveys in English and that the language used would not affect the way respondents read and interpreted the statements.

A snowball sampling technique was then used to broaden the sample beyond student respondents and to maximise the number of participants. The second sample was provided with a link to an online survey using the *Qualtrics* online survey system. Additional respondents were reached

through the WeChat Chinese social network. Respondents were invited and encouraged to share the survey link with their WeChat friends.

3.4.3 Scale Evaluation Results

A total of 165 valid questionnaires were returned. Detailed descriptive results are shown in the Appendix 13. Table 3.4 provides a demographic profile of respondents. There were significant differences in gender and social status. The gender imbalance is representative of student cohorts in the tourism cluster in the University of Queensland.

Table 3.4 Respondents' profile (N=165)

Socio-demographic characteristics	Frequency	Percentage
Gender		
Female	127	77.0
Male	38	23.0
Social Status		
Student	103	62.4
Employed for wages	29	17.6
Retired	13	7.9
Others	20	12.1
Age (years)		
18-25	101	61.2
26-35	23	13.9
36-45	14	8.5
46-60	25	15.2
61-70	2	1.2
Home city		
First-tier	77	46.7
Second-tier	55	33.3
Third-tier	12	7.3
Others	21	12.7

A series of exploratory factor analyses were used to investigate the factor structure of the items from the four Chinese cultural value scales. Principal Component Analysis (PCA) was conducted on all four value scales using the Varimax rotation method. Varimax rotation is the most commonly used rotation method employed by social science researchers as it extracts the components and produces more easily interpretable results (Costello & Osborne, 2005). The number of dimensions was identified based on factors with eigenvalues greater than 1.0, as suggested by Kaiser (1960). According to Field (2009), a KMO value approaching one means the data are suitable for factor analysis. The KMO value should exceed the cut-off value of 0.50 (Kaiser, 1974).

Three criteria were used to determine the factor structure in all four value scales: a) retain items with a factor loading equal to or greater than .50, b) exclude items with cross-loading scores where the difference was smaller than 1.0 and c) exclude single item factors. All 40 items from Chinese

Culture Connection's (1987) value scale were included in the initial PCA factor analysis using this procedure. Fourteen items did not meet the criteria and were rejected before analysing the data again. Five factors were identified and results are shown in Table 3.5.

Table 3.5 Exploratory factor analysis of The Chinese Culture Connection's (1987) Value Scale

Items	Mean (SD)	Factor loading	Cronbach α
Factor 1: Self-cultivation			0.89
Self-cultivation	6.53 (0.75)	0.82	
Knowledge (Education)	6.47 (0.77)	0.78	
Persistence (Perseverance)	6.35 (0.89)	0.72	
Trustworthiness	6.57 (0.75)	0.69	
Industry (working hard)	6.24 (0.86)	0.67	
Sense of righteousness	6.33 (0.78)	0.64	
Observation of rites and social rituals	6.20 (0.96)	0.64	
Adaptability	6.35 (0.82)	0.63	
Courtesy	6.50 (0.78)	0.60	
Reciprocation of greetings, favours, gifts	6.06 (1.02)	0.57	
A close, intimate friend	6.25 (1.00)	0.52	
Factor 2: Conservatism			0.80
Thrift	5.25 (1.38)	0.78	
Keeping oneself disinterested and pure	4.41 (1.52)	0.76	
Being conservative	4.09 (1.71)	0.68	
Chastity in women	5.42 (1.50)	0.62	
Resistance to corruption	6.03 (1.23)	0.57	
Ordering relationships by status and observing this order	5.67 (1.26)	0.55	
Factor 3: Face			0.62
Protecting your "face"	4.08 (1.52)	0.69	
Wealth	5.46 (1.24)	0.68	
Prudence (carefulness)	5.10 (1.31)	0.62	
A sense of cultural superiority	4.70 (1.55)	0.54	
Factor 4: Harmony with others			0.67
Filial Piety	6.44 (0.95)	0.79	
Patience	6.31 (0.90)	0.66	
Tolerance of others	5.91 (1.08)	0.64	
Factor 5: Self-protection			0.62
Contentedness with one's position in life	5.08 (1.46)	0.80	
Having a sense of shame	6.14 (1.16)	0.71	

The factors were named according to the strongest loading items in each factor, as shown in Table 3.5. The five factors explained 58.1% of the total variance, with the *self-cultivation* factor revealing the highest exploratory power of the five factors. As to the reliability of these five factors, the alpha values ranged from 0.62 to 0.90. Research (Nunnally, 1967; Petrick & Backman, 2002; Setbon & Raude, 2010) indicates that a Cronbach alpha greater than 0.6 is acceptable for scales with five or less items whilst 0.7 is acceptable for scales with five or more items. Moreover, 0.6 is an acceptable Cronbach alpha value for new scales or exploratory scales (Churchill Jr, 1979; Flynn, Sakakibara, Schroeder, Bates, & Flynn, 1990; Nunnally, 1967). Therefore, Cronbach alpha values of this scale indicate good internal consistency among the items within each dimension. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy shows adequate fit (KMO = 0.87) and Bartlett's Test

of Sphericity is significant (<0.05). The results differed from the analysis presented by Matthews's (2000) original work (four factors). Some construct in Matthews' factors were split into sub-constructs. However, the factor loading of the items and internal consistency of the factors were much higher in the present study comparing with Matthew's work.

Next, all 22 items for Zhang's (2005a) value scale were included in a factor analysis. Nine items failed to meet the criteria for inclusion and were deleted from subsequent analyses. The final model included five factors as shown in Table 3.6. The factors were named according to the strongest loading items in each factor as shown in Table 3.6.

Table 3.6 Exploratory Factor analysis of Zhang's (2005a) value scale

Items	Mean (SD)	Factor loading	Cronbach α
Factor 1: Belief in fate			0.73
Every encounter with someone is the result of fate	5.66 (1.36)	0.87	
I believe in fate	5.82 (1.31)	0.80	
If you are kind in life, you will be rewarded in a future world	5.48 (1.66)	0.72	
Factor 2: Harmony with nature			0.72
'Let it be' is the best motto in life	4.61 (1.72)	0.81	
I prefer purchasing green food	5.27 (1.41)	0.77	
Harmony will be achieved spontaneously if everything evolves naturally	4.81 (1.64)	0.76	
Factor 3: Social status			0.70
An individual's choice of clothing should be consistent with their social status	4.30 (1.75)	0.81	
An individual's daily behaviour should be consistent with their social status	4.93 (1.82)	0.78	
An individual's consumption level should be consistent with their social status	4.81 (1.61)	0.75	
Factor 4: Face			0.71
I prefer to purchase luxury products when I am shopping with wealthier friends	2.76 (1.53)	0.87	
I try to avoid purchasing discounted products in front of my colleagues	2.51 (1.59)	0.84	
Factor 5: Thrift			0.66
Luxury goods are useless	3.39 (1.49)	0.88	
I rarely purchase luxury products, as the price is often inconsistent with their quality	3.64 (1.54)	0.82	

The five factors explained 69.4% of the total variance. The alpha values for the five factors ranged from 0.66 to 0.73, indicating good internal consistency among the items within each dimension. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy showed adequate fit (KMO = 0.64) and Bartlett's Test of Sphericity was significant (<0.05). The results confirmed most of the dimensions proposed in Zhang's (2005a) original work, but some factors were abandoned because of low factor loading of the items, like 'karma' and 'listening to others'.

The 30 items for Yau's (1988) value scale were analysed next, following the same procedure described previously. Fifteen items did not meet the criteria and were deleted from subsequent analyses. The factor solution produced three factors with eigenvalues greater than one, as shown in Table 3.7. The factors were named according to the highest loading items in each factor.

Table 3.7 Exploratory factor analysis of Yau's (1988) value scale

Items	Mean (SD)	Factor loading	Cronbach α
Factor 1: Group orientation			0.85
Courtesy	6.50 (0.78)	0.80	
Observing social rituals & obligations	6.33 (0.78)	0.73	
Perseverance (Persistence)	5.58 (1.27)	0.64	
Solidarity with others	6.18 (0.99)	0.60	
Respect for tradition	6.14 (1.16)	0.59	
Having a sense of shame	6.35 (0.89)	0.57	
Seeking a happy medium / satisfactory compromise in resolving conflicts	5.88 (1.16)	0.54	
Reciprocation of greeting, favours, gifts	5.70 (1.13)	0.53	
Humility (Humbleness)	6.06 (1.02)	0.51	
Factor 2: Situation orientation			0.77
Patience	6.31 (0.90)	0.79	
Practical approach to things	5.79 (1.15)	0.79	
Repayment of the good that another person has caused you	6.08 (1.08)	0.72	
Adaptability to different situations	6.35 (0.82)	0.58	
Factor 3: Respect for authority			0.68
Respect for seniority	4.54 (1.47)	0.81	
Trust in the advice of experts	4.38 (1.42)	0.80	

The three factors explained 57.0% of the total variance. Alpha values ranged from 0.68 to 0.85, indicating good internal consistency among the items within each dimension. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy showed adequate fit (KMO = 0.86) and Bartlett's Test of Sphericity was significant (<0.05). The results did not support the original classification proposed by Yau (1988), but provide evidence of three underlying constructs.

Analysis of the 40 items for Hsu and Huang's (2016) value scale revealed that fourteen items did not fit the inclusion criteria. These were deleted from subsequent analyses to produce the six-factor solution shown in Table 3.8.

Table 3.8 Exploratory factor analysis of Hsu and Huang's (2016) value scale

Items	Mean (SD)	Factor loading	Cronbach α
Factor 1: Down-to-earth			0.83
Planning	6.05 (1.05)	0.76	
Down-to-earth	6.00 (1.06)	0.74	
Sense of obligation	6.45 (0.86)	0.70	
Stability and security	5.87 (1.15)	0.67	
Being considerate of others	5.91 (1.08)	0.56	
Factor 2: Enjoyment			0.81
Leisure	5.53 (1.21)	0.83	
Liberation	6.04 (1.12)	0.74	
Indulgence	5.11 (1.36)	0.70	
Live in the moment	5.64 (1.35)	0.64	
Fashion	4.99 (1.44)	0.61	
Factor 3: Complacency			0.74
Non-competitiveness	3.62 (1.42)	0.73	
Complacency	3.87 (1.50)	0.67	
Conformity	3.73 (1.50)	0.65	
Easy and comfortable	4.92 (1.50)	0.64	
Compromise	4.47 (1.26)	0.56	
Factor 4: Self-cultivation			0.78
Knowledge and education	6.47 (0.77)	0.73	
Self-discipline	6.53 (0.75)	0.70	
Harmony	5.93 (0.99)	0.65	
Industry (working hard)	6.24 (0.86)	0.61	
Factor 5: Self interest			0.77
Self-interest	3.87 (1.60)	0.84	
Ostentation	3.00 (1.60)	0.76	
Fame and fortune	4.59 (1.49)	0.74	
Factor 6: Moral discipline			0.69
Courtesy and morality	6.50 (0.78)	0.71	
Kindness	5.98 (1.18)	0.70	
Respect for history	5.58 (1.27)	0.62	
Honesty	6.57 (0.75)	0.57	

It should be noted here that the 'competitiveness' item was reverse coded from the original scale and is presented in the table above as 'non-competitiveness'. These six factors explained 63.3% of the total variance. The alpha values ranged from 0.69 to 0.83 indicating good internal consistency among the items within each dimension. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy showed adequate fit (KMO = 0.81) and Bartlett's Test of Sphericity was significant (<0.05). The results did not confirm the original classification proposed by Hsu and Huang (2016). There are more factors generated from factor analysis in the present study which therefore provide a more comprehensive and rational list of dimensions.

3.4.4 Discussion of the four Chinese Cultural Value Scales

The purpose of the scale evaluation study was to identify the dimensions of Chinese cultural values and to ascertain which one of the four existing Chinese cultural value scales is likely to be the most reliable and valid measurement instrument. Previous studies have identified a number of Chinese

cultural values using qualitative methods (e.g., Chinese Culture Connection, 1987; Hsu & Huang, 2016). However, very few of these constructs have been subjected to statistical analysis to identify underlying constructs. Several scholars have issued calls for the development of Chinese cultural value measurements that are appropriate for use in tourism destinations. Scholars have also emphasised the importance of developing Chinese cultural value measurements since cultural variations are one of the main causes of the differences in individuals' attitudes and behaviours. Moreover, values are considered to be a stable predictor of tourist behaviour (e.g., Fu et al., 2015; Gao et al., 2017; Hsu & Huang, 2016; Kwek & Lee, 2010).

A summary of the dimensions identified in the present study and items discarded from the original scales are shown in Table 3.9. After deleting fourteen value items, the value items remaining in Chinese Culture Connection's (1987) value scale were categorised into five value factors or dimensions rather than the four proposed in the original research (Chinese Culture Connection, 1987). Value items in Zhang's (2005a) scale were classified into five dimensions compared with the original eight dimensions (Zhang, 2005a). Three dimensions were identified from Yau's (1988) value scale, compared with five dimensions in the original paper (Yau, 1988). Finally, six dimensions were identified in Hsu and Huang's (2016) value scale, whereas three factors were proposed for the original construct (Hsu & Huang, 2016).

Value items were deleted from the original scales for three main reasons. Firstly, some value items were dropped because they had relatively low factor loadings, such as, 'having few desires', 'moderation' and 'benevolent authority', and 'loyalty to the person you work for/loyalty to superiors'. Although these value items are accepted as core values of the traditional Chinese ethos, they do not contribute to the underlying constructs so they are less reliable for measuring these constructs. Secondly, some value items represent traditional values that appear to be less relevant in modern society because they were rated lower. These include 'nothing is given without a disadvantage in it', 'a woman should wear makeup to please her husband' and 'worship foreign cultures'. Although these items were valued in traditional Chinese culture, they are becoming less important for Chinese people living in the modern society. Also, the sample in the present research was relatively young and this group would probably hold different values, attitudes and behaviours to the population regardless of their culture (Egri & Ralston, 2004). The forces of globalisation and social media have resulted in greater exposure to Western values and the gradual erosion of some traditional Chinese values. Thirdly, despite being valued by Chinese respondents, some value items did not fit well with the dominant value dimensions. Examples include 'filial piety', 'health' and

'respect for legal practice'. Chinese respondents highly valued these value items, but these particular items could not be grouped with other value items in the scale. Thus, these values were eliminated.

Table 3.9 Original and modified scale dimensions and items

Scales and authors	Original dimensions	Modified dimensions	Items discarded from original scales
Chinese Culture Connection's (1987) value survey	4 dimensions: Integrity and tolerance, Confucian ethos, Loyalty to ideals and humanity and moderation and moral discipline	5 dimensions: **Self-cultivation**, Conservatism, **Face**, **Harmony** with others and Self-protection	Harmony with others, Humbleness, Loyalty to superiors, Kindness, Solidarity with others, Moderation, Benevolent authority, Non-competitiveness, Personal steadiness and stability, Patriotism, Sincerity, Repayment of both the good and the evil that another person has caused you, Having few desires, Respect for tradition
Zhang's (2005a) value survey	8 dimensions: Fit between behaviours and social status, Family reputation, Listen to others, Nature admiring, Harmony with nature, Karma, Luxury useless and Believe in Fate	5 dimensions: Belief in fate, **Harmony** with nature, Social status, **Face** and Thrift	A woman should wear makeup to please her husband, Modesty moves one forward, whereas conceit moves one backwards, The advice of my mentors is very important to me, I would describe myself as a self-disciplined individual, I admire natural beauty, My ideal living place is one that looks like a landscape painting, As a man sows, so he shall reap, Nothing is given without a disadvantage in it, Lies will always be exposed
Yau's (1988) value survey	5 dimensions: Man-to-nature orientation, Man-to-himself orientation, Relational orientation, Time orientation and Personal activity orientation	3 dimensions: Group orientation, Situation orientation and Respect for authority	Leave everything to fate, Loyalty to the person or people you work for, Kindness and compassion for others, Protecting your public image, Moderation in all things, Contentedness with and acceptance of who you are, Having a clear conscience, Tolerance and understanding of others, Maintaining the status quo, Protecting your reputation, Having few desires, Belief that what you do now will have future consequences, Non-competitiveness, Revenge, Filial piety
Hsu and Huang's (2016) value survey	3 dimensions: Instrumental values, Terminal values and Interpersonal values	6 dimensions: Down-to-earth, Enjoyment, Complacency, **Self-cultivation**, Self-interest, Moral discipline	Confidence, Respect for legal practices, Moderation, Thrift, Convenience, Quality of life, Worship foreign cultures, Health, Horizon broadening/novelty, Collectivism, Devotion to children, Family orientation/kinship, Filial piety, Friendship

Bold text indicates value factors overlapped between multiple scales

More importantly, several value dimensions were confirmed across multiple scales, such as self-cultivation, harmony (with nature or others)/group orientation, and face (see table 5.1). These value dimensions appear to be central to the value systems of Chinese people and differ from Western value systems. Self-cultivation, which includes values like knowledge, self-discipline, persistence and industriousness (working hard), was found to be an important value concept for the Chinese respondents in this study. This coincides with previous research findings (e.g., Fu et al., 2015; Ho, 1995; Leung, 2010) and traditional Chinese philosophy. In Confucian thought, the ultimate goal of

life is self-realisation and self-cultivation was believed to be an essential means to fulfil this purpose. Moreover, self-cultivation was regarded as a necessary condition for maintaining familial relationships and achieving harmony (Ho, 1995). As maintained by Confucian belief, "It is man that can make the Way great and not the Way that can make man great" (Waley, 2005, p. 199). The Confucian ethos also advises followers to "look not at what is contrary to propriety; listen not to what is contrary to propriety; speak not what is contrary to propriety; make no movement that is contrary to propriety" (Ho, 1995, p. 118). All these ethoses require self-cultivation. Thus, it is not surprising that self-cultivation appeared across multiple scales.

Harmony, including value items like tolerance of others, kindness and harmony with nature, also appeared across multiple scales. This is also consistent with previous research findings (e.g., Kwek & Lee, 2010; Mok & DeFranco, 2000). As one of the three Chinese traditional ethoses, Daoism is based on the belief that "the good life is the simple life—spontaneous, in harmony with nature, unencumbered by social regulation and free from the desire to achieve social ascendancy" (Ho, 1995, p. 119). Daoists believe the selfless person leads a balanced life, in harmony with surroundings (e.g., nature and society). In terms of harmony with nature, Chinese people believe human beings and other lives should have equal rights and humans have no rights to control or manipulate other living things (Leung, 2010). As for harmony with others, the Confucian value of Li (propriety) plays an important role in avoiding conflict and encouraging adherence to group harmony (Fu et al., 2015; Kwek & Lee, 2010). Assertive or competitive behaviours are believed to create conflict and break harmony and are socially unacceptable in Chinese culture (Matthews, 2000). Research also found that Chinese people tend to avoid complaining to service providers, even though they were dissatisfied with the suppliers, in order to maintain harmony (Mok & DeFranco, 2000). Group (social) orientation is a result of pursuing group harmony. Value items like observing social rituals and obligations, solidarity with others and social status were included in group orientation. Chinese culture is characterised as collectivistic and individuals tend to believe that out-group members are less trustworthy and dependable (Leung, 2010). For instance, Fu et al. (2015) confirmed that Chinese tourists seemed to draw a distinctive boundary between their tour group members and anyone out of the group. Mok and DeFranco (2000) found Chinese travellers preferred travelling in group tours rather than independent tours. Moreover, research also indicated that Chinese people are perceived as more homogeneous than other national groups as they believed that the group is the basic unit (Leung, 2010). Thus, it could be concluded that Chinese people are group-oriented and seek collective harmony.

Face, like wealth, a sense of cultural superiority and avoiding the purchase of discounted products in front of others, was the third value factor confirmed by multiple scales in this study. 'Face' refers to "a positive image that is affirmed through interaction with others" (Chan, Wan, & Sin, 2009, p. 293). Along with self-cultivation and harmony, the notion of face has a profound influence on contemporary Chinese people. This finding is consistent with previous research results (e.g., Gao et al., 2017; Mok & DeFranco, 2000). In China, face is a complex concept as it is linked with a number of social and personal elements, such as honour, reputation, dignity and reciprocity (Zhai, 2010). Triandis (2001) indicated that face has greater significance in collectivist cultures than individualist cultures. Chinese people value face so much that they place a high value on interpersonal relationships (Mok & DeFranco, 2000). Moreover, Chinese usually avoid criticising others in order to preserve others' face in social encounters (Bond & Lee, 1978). This is also linked to the importance of harmony in Chinese society, as discussed above.

Although some value factors were shared by multiple scales, each scale also included distinct dimensions. The more distinct dimensions are most likely the result of the different philosophical underpinnings and the purpose of each scale. Chinese Culture Connection's (1987) scale included traditional dimensions such as 'conservatism' and 'self-protection' as the scale was underpinned by a Confucian ethos. The scale was developed for measuring traditional Chinese social values (Chinese Culture Connection, 1987). Value factors in Zhang's (2005a) value scale were more nature- and consumption-oriented, with dimensions such as 'thrift' and 'harmony with nature'. That was because Zhang's (2005a) value scale was developed to understand green-purchasing behaviour. Yau's (1988) value scale included unique dimensions such as 'situation orientation' and 'respect for authority' as this scale was originally developed in the marketing and management field. More contemporary value factors were included in Hsu and Huang's (2016) scale, such as 'enjoyment', 'complacency' and 'self-interest'. This scale was developed in a tourist behaviour context and the use of a qualitative methodology resulted in a mix of traditional and modern Chinese values

The scale adapted from Hsu and Huang's (2016) recent work (i.e., value scale 4) was selected for subsequent phases of data collection in this study. There were five reasons for this choice. Firstly, the number of items in each factor was approximately even. Secondly, Hsu and Huang's (2016) scale included a more comprehensive list of dimensions than other scales (i.e., six dimensions). Thirdly, the internal consistency for each factor was higher than some of the factors in other scales. Fourthly, the scale was developed in a tourism context. Finally, the scale is more up-to-date than other scales because it includes both traditional and modern Chinese values.

3.5 Phase 1: Onsite Study

Based on the findings generated from the pilot study, a questionnaire was developed to: (1) examine the relationship between Chinese cultural values and environmental attitudes; (2) explore the relationship between Chinese tourists' environmental attitudes and their environmental behaviours; (3) investigate the relationship between Chinese cultural values and Chinese tourists' environmental behaviours and (4) examine the relationship between Chinese tourists' pro-environmental behaviours and their participation in nature-based activities.

The questionnaire was pilot-tested to ensure its reliability and validity. The pilot test included two steps. First, to examine the language and face validity of the questions, a focus group meeting was arranged. The draft questionnaire was reviewed and discussed by an expert panel of six Chinese PhD students specialising in tourism research at the University of Queensland. The structure and content of the questionnaire was subsequently reviewed. Confusing terms and implicit expressions were revised based on comments and feedback from the focus group. Second, an on-site pilot survey was conducted with 60 Chinese tourists visiting Tangalooma Island Resort. The aim was to test the scale items' reliability and validity in-situ with actual tourists. Additionally, potential reasons for tourists not engaging in and participating in certain behaviours and activities were explored through open-ended questions at the end of questionnaire.

3.5.1 Research site

The selection of a suitable study site was based on two key criteria. Firstly, as this research aims to explore the impact of values on Chinese tourists' environmental attitudes and behaviours, a site that offers a natural environment, nature-based activities and wildlife viewing was needed. Secondly, a nature-based tourism site that attracts a substantial number of Chinese tourists was required. Tangalooma Island Resort on Moreton Island was selected as a suitable site because it is the most visited nature-based tourism destination for Chinese tourists in the Brisbane region (Packer et al., 2014). In 2014, Chinese tourists accounted for approximately 12% of the resort's total market (Packer et al., 2014). The resort has a wide range of nature-based activities including sand dune tobogganing, whale-watching, fish-feeding, parasailing, snorkelling, scuba-diving, ATV quad bike tours, marine discovery tours, helicopter flights, dolphin-feeding and star-watching. In addition, the average length of stay of Chinese tourists visiting Tangalooma exceeded one night. An overnight stay was considered essential as it would provide tourists with the opportunity to engage in a range of pro-environmental behaviours such as saving water and saving energy.

Tangalooma Island Resort is located on Moreton Island, a 75-minute ferry ride from Brisbane. Figure 3.1 shows the location of Tangalooma Island Resort.

Figure 3.1 Location of Tangalooma Island Resort

This nature-based attraction provides opportunities for encounters with both wildlife and natural environments and a wide range of nature-based activities for the tourists. The resort has over 300 guest rooms including luxury apartments, hotel rooms, villas, houses and resort suites. Moreover, it has a range of cafes, bars, a western-style restaurant and a Chinese restaurant. The unique attraction of the resort is the hand-feeding of wild bottlenose dolphins, which is the most popular activity with Chinese tourists.

The researcher selected the pro-environmental behaviours for this study based on a two-day stay at Tangalooma Island Resort as well as discussions with key staff working on the island, including the Marketing Manager and tour guides. The site inspection identified several pro-environmental actions that could be easily undertaken by Chinese tourists. The behaviours use in the current study were:

1. I tried to spend a shorter time in the shower to save water

2. I turned off the tap while brushing my teeth to save water

3. I switched off the television when I was not in the room.

4. I switched off the lights when I was not in the room.

5. I turned off the air conditioning/ heating when I was not in the room.

6. I recycled paper/plastic/glass products whenever possible.

7. I placed rubbish in the bins provided.

The selection of nature-based activities for this study was based on a review of Tangalooma's official website, the researcher's two-day on-site experience and several discussions with a tour guide. After an in-depth discussion with the tour guide at the resort, the "star-watching" activity was added to the existing activities as this activity is especially designed for Chinese visitors. Table 3.10 shows the activities selected for this study.

Table 3.10 Nature-based activities at Tangalooma selected for the study

Water-based activities	Land-based activities	Dolphin feeding
Marine Discovery Cruise	4WD car hire	Dolphin-feeding
Whale-watching	ATV Quad Bike Tours	Marine education & conservation centre
Fish-feeding	Helicopter flights	"Discover the World of Dolphins" presentation
Banana boat ride	Eco walk	
Snorkelling	Star-watching and presentation	
Scuba-diving		
Parasailing		

Observations of the setting at Tangalooma Island Resort identified current management strategies designed to encourage participation in pro-environmental behaviour and nature-based activities. For example, some conservation knowledge was provided at 'The Eco Centre' at the island, which aims to educate guests on the importance of conservation and protection of the natural life. Some onsite environmental interpretation was also provided. However, there was a general lack of information or activities particularly designed for Chinese tourists.

3.5.2 Research instrument

A self-administered questionnaire was used to explore the relationships between the key variables being measured. The questionnaire was translated into Chinese because the target respondents were Chinese tourists rather than university students and it was felt their English language ability may not be sufficient to complete the questions. A bilingual panel approach (Cha, Kim, & Erlen, 2007) was used to translate the questionnaire from English to Chinese. A group of tourism PhD students were invited to join a one-hour bilingual panel. Every panel member was given a set of scales to translate. Panel members translated scale items one by one and arrived at a panel consensus about

the translation results for each item. This approach was used because it is generally considered to produce a clearer version of the translated instrument as errors by individual panel members can be identified by other panel members. Moreover, this method is appropriate when bilingual translations have a target language (i.e., Chinese, in this study) (Cha et al., 2007).

The final questionnaire (see Appendix 14) consisted of seven main parts:

1. Chinese cultural values scale
2. Environmental attitudes scale (Chinese version revised NEP)
3. Questions about participation in designated pro-environmental behaviours
4. Questions about participation in specific pre-defined nature-based activities
5. List of reasons for not engaging and participating in certain behaviours and activities
6. Items measuring social desirability bias
7. Items measuring socio-demographic details such as age, gender, education level and home city.

As the survey was administered on the return ferry trip, the time was limited (approximately 75 minutes). Thus, a quick and easy answer format was considered to be suitable for this phase of study. *Chinese cultural values* were measured using the Chinese Cultural Values scale adapted from Hsu and Huang (2016), and *Environmental attitudes* were measured using the Chinese version of the revised NEP scale developed by Hong (2006).

Tourists' *pro-environmental behaviours* were measured by asking participants, "Did you engage in the following behaviours during the time you visited Tangalooma Island Resort?" Participants indicated their responses by ticking 'Yes' or 'No'. According to Dolnicar, Grün, and Leisch (2011), the forced binary answer format (e.g., 'Yes/No') is quick, simple and perceived to be a less complex answer format. The list of pro-environmental behaviours included: water conservation behaviours (e.g., I tried to shorten the time I take my shower), energy conservation behaviours (e.g., I switched off the light when leaving the room) and waste management behaviours (e.g., I put rubbish in the bins provided). Items were coded as '1' if respondents answered 'Yes', and '0' if they answered 'No'.

Participation in nature-based activities was measured using a single question, worded as follows: "Did you participate in the following activities during the time you visited Tangalooma Island Resort?" Participants were again asked to indicate their responses by ticking 'Yes' or 'No'. Items were coded as '1' if respondents answered 'Yes', and '0' if they answered 'No'. The nature-based activities included like dolphin-feeding, fish- feeding, eco walk, star-watching and 4WD-driving.

Participants were also asked to indicate why they did not engage in certain behaviours and why they did not participate in certain activities.

Social Desirability Bias (SDB) can affect the validity of experimental and survey research findings in psychology and the social sciences (Fisher, 1993; King & Bruner, 2000; Milfont, 2009). "The basic human tendency to present oneself in the best possible light can significantly distort the information gained from self-reports" (Fisher, 1993, p. 303). Consequently, to test the effect of Social Desirability Bias on the results, a short version of the SDB scale (14 items) was included in the questionnaire. This brief version of the SDB scale was developed from the Marlowe-Crown Social Desirability Scale and the scale was translated into Chinese by two native speakers of Chinese (Tao, Guoying, & Brody, 2009).

3.5.3 Research procedure

The questionnaire was distributed to Chinese group tourists visiting Tangalooma Island Resort during the months of September and October in 2016. These two months represent the Chinese Summer Holiday and are usually the peak period for Chinese tourists visiting Tangalooma Island Resort. The data collection procedure is shown in Figure 3.2.

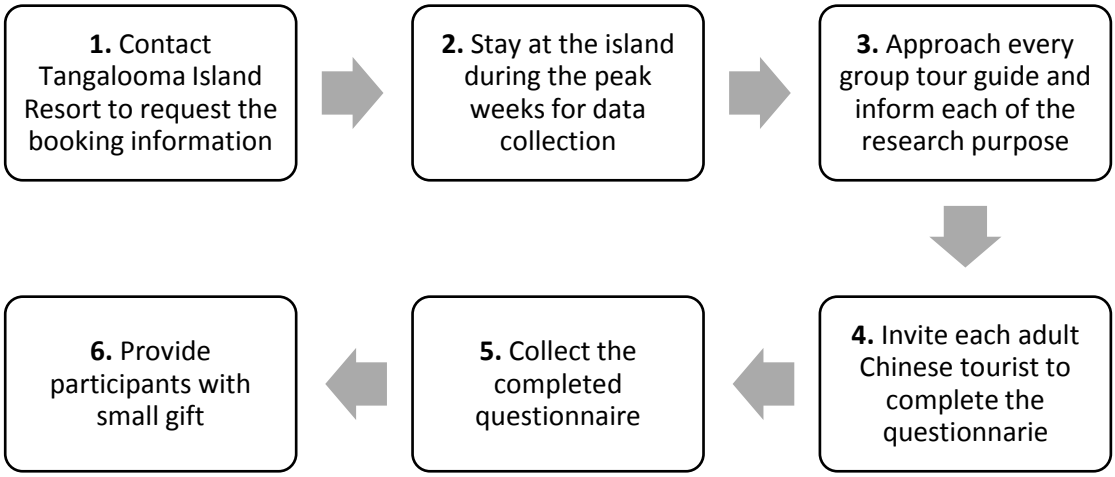

Figure 3.2 Onsite data collection procedure

The researcher contacted the Tangalooma Island Resort manager in May to request the booking information for Chinese tour groups. Based on this data, three peak weeks were selected for data collection: 28th September – 18th October.

All Chinese tourists were approached when they travelled back from the island on the ferry. The data collection started once the ferry entered a stable sea area as wave motion would influence the participants' physical condition. Before survey questionnaires were distributed, prospective participants were shown an information sheet and were informed that participation was voluntary and anonymous. A small-sized toy dolphin was provided as a gift if the participants completed the survey - prospective participants were informed of this at the beginning. Completed questionnaires were collected five minutes before the ferry reached the wharf on the mainland.

3.5.4 Sampling and respondents

In most studies, it is impractical to survey entire target populations due to time and budget constraints (Veal, 2011). Sampling provides a range of methods to reduce the amount of data collected. However, the representativeness and generalisation of the sample for the whole target population are major concerns. Once the target population is identified, the sampling frame should be determined. The sampling frame refers to the sources from which a sample is drawn; that is, a list of all members of units within a population who can be sampled (e.g., telephone dictionaries, hotel guests' lists, or client databases) (Jennings, 2010).

The target participants in this study were Chinese tourists, who stayed more than one night at Tangalooma Island Resort. The participants were easy to access at the resort. Accordingly, the convenience sampling approach was the most appropriate sampling method for this study, as it is less time-consuming, less expensive and more expedient (Jennings, 2010).

The sample size is usually determined by several factors; for instance, the overall size of the population, the nature of the population, the accessibility of the population, the amount of time available to conduct the study and the amount of money available to fund the study (Jennings, 2010). According to Veal (2011), when the population reaches 500,000, the estimated sample size remains at 384 until infinity with a 95% confidence interval. Sample sizes for previous studies assessing the Value-Attitude-Behaviour relationship ranged from 200 to 323 (Fu et al., 2014; Milfont, Duckitt, & Wagner, 2010; Muzikante & Reņģe, 2011). These numbers have been confirmed to be sufficient for regression analysis. Generally, quantitative research is associated with a large sample size to obtain a high degree of accuracy and to increase the representativeness of the sample. Therefore, taking cost, time, feasibility, method of data analysis and non-probability sampling bias into consideration, participants were those Chinese group tourists who visited Tangalooma Island Resort overnight during the data collection period. Invalid (e.g., respondents

answer the same options for each item without reading the question) and incomplete questionnaires were removed from the data set. A total of 505 complete and valid onsite questionnaires were returned. Table 3.11 presents a profile of the respondents.

Table 3.11 Respondent profile (N=505)

Characteristics	Frequency	Percentage (%)
Gender		
Female	301	59.6
Male	204	40.4
Age (years)		
15-25	76	15.0
26-40	265	52.5
41-55	89	17.6
56-70	66	13.1
70+	9	1.8
Social Status		
Student	44	8.7
Employed for wages	207	41.0
Self-employed	51	10.1
Education	22	4.4
Government and Public Administrator	21	4.2
Unemployed	26	5.1
Retired	83	16.4
Other	51	10.2
Home city		
First-tier	218	43.2
Second-tier	147	29.1
Third-tier	43	8.5
Others	97	19.2

As can be seen from Table 3.11, the sample consisted of a relatively even gender split. The majority of participants (52.5%) were aged 26 to 40. Most were employed (40.0%) and 72.3% of participants came from first-and second-tier cities.

In addition to the basic demographic information, participants' travel patterns and past travel experiences were collected to gain a more complete picture of the sample. The results show that almost half of the total sample (57.6%) were part of an organised group tour. The majority of participants (87.3%) stayed only one night at the resort. Most of the participants (68.9%) had travelled out of China more than three times.

3.6 Phase 2: Online Study

After data were collected and analysed, it became apparent that the onsite sample was not diverse enough, making it difficult to detect the relationships predicted by the VAB framework. The research context in the present study was sustainable tourism (including both urban- and nature-based tourism destinations) rather than nature-based tourism. The onsite study sampled participants

who had visited one single nature-based destination (with short stay), and visitors who travelled to the same site (Tangalooma Island Resort in the present study) may have the same preference of destination (i.e., nature-based). Thus it was felt that the results might be biased or not indicative of the values, attitudes and behaviours of Chinese tourists who have travelled to diverse destinations. Additionally, Chinese outbound tourists market is changing from group tour to independent tour. Thus, it is necessary to involve more independent travellers into the sample. To test this possibility and fill the gap, a second phase was designed. The main objective of this phase was to further explore the relationship among Chinese cultural values, environmental attitudes and environmental behaviours with a larger, more heterogeneous, sample.

3.6.1 Research Instrument

An online self-administered questionnaire was used to explore the relationships between the variables shown in the conceptual framework. The questionnaire used in this phase of study was similar to the one used for the onsite data collection in phase 1. Some minor changes were made as the target sample were not Chinese outbound tourists visiting a single site but Chinese people who had travelled overseas in the preceding 12 months (see Appendix 16).

The questionnaire consisted of seven main parts:

1. Chinese cultural values scale
2. Environmental attitudes scale (Chinese version revised NEP)
3. Questions about participation in pro-environmental behaviours while travelling overseas
4. Questions about participation in pre-defined nature-based activities
5. Items measuring social desirability bias
6. Items measuring the most recent outbound travel experience in past 12 months such as pattern of travel, length of travel and time of travel
7. Items measuring basic socio-demographic details such as age, gender, education level and home city.

Most items, except tourists' pro-environmental behaviours and nature-based activity participation, were the same as the onsite questionnaire used in phase 1. The pro-environmental behaviours used for the onsite survey were specific to the context of an island resort destination. For the online study, these items had to be adjusted to include a more general list of pro-environmental behaviours for a range of travel contexts. The literature was consulted to identify whether any scales have been previously developed and tested. Several measurement scales of pro-environmental behaviours have

been developed in different research contexts (e.g., at home and in travel). A summary of the most commonly used pro-environmental behaviour scales is provided in Appendix 18. Some daily pro-environmental behaviours are not relevant to travel contexts (e.g., washing the car). Therefore, Dolnicar's (2010) vacation-focused pro-environmental behaviours scale was adapted to measure Chinese tourists' pro-environmental behaviours during their trip. Tourists' *pro-environmental behaviours* were measured by asking participants, "How frequently have you engaged in any of the following behaviours during your most recent overseas trip?" The list of pro-environmental behaviours included: water conservation behaviours (e.g., I saved water), energy conservation behaviours (e.g., I switched off the light when leaving the room), waste management behaviours (e.g., I put rubbish in the bins provided) and green purchase behaviours (e.g., I bought products that protect the environment). Participants indicated their responses with '1 = never', '2 = rarely', '3 = sometimes' and '4 = always', rather than the binary questions used for the onsite study in phase 1. This decision was based on the observation that in the Phase 1 study Chinese tourists found binary questions problematic. Some respondents ticked 'Yes' for all the pro-environmental behaviours without reading the question, which created difficulties in differentiating between participants.

Participation in nature-based activities was measured using a single question, worded as follows: "Have you participated in the following activities during your visit to your most recent outbound travel destination?" Asking participants to recall their behaviours during the past 12 months reduces the effects of memory decay and enhances self-report reliability. Answer options were 'Yes/No'. The items included common nature-based activities available in most countries; such as visiting national parks or state parks, visiting wildlife parks, zoos or aquariums and visiting botanical or other public gardens. It should be noted here that a binary approach was used rather than the four-point rating scale adopted for pro-environmental behaviours because some respondents participated in nature-based activities (e.g., scuba diving, visiting a zoo) several times in a single trip. Asking participants to indicate whether they had participated in certain activities was considered more appropriate than asking them to indicate frequency.

3.6.2 Research procedure

The questionnaire was distributed through a popular and reliable online Chinese survey panel known as *SoJump*. The online questionnaire was pilot tested with the advisory team and a Chinese PhD focus group to check language and face validity before launching online. A screening question asked participants to indicate if they had taken an overseas trip during the past 12 months. Respondents who indicated that they had were invited to continue with the survey. Respondents

were shown an information sheet and were told that participation was voluntary and anonymous before they started the survey. It took 15-20 minutes for most participants to answer all the questions. Participants were prompted with a pop-up message 'please answer ALL the questions' if they missed any questions on the page. Participants who finished all the questions were given points that could be exchanged for money. In total, it took two weeks for the online panel website to recruit participants. Incomplete questionnaires and invalid questionnaires (e.g., questionnaires with extremely short/long response time and questionnaires with low standard deviations between rating scales) were eliminated from the dataset.

3.6.3 Sampling and respondents

The sampling frame in this study was Chinese residents who had undertaken an overseas trip during the previous 12 months. A non-probability sampling method was used as each unit of the population did not have an equal chance of being included in the study. A convenience sampling method was used in this study as the participants were easy to recruit from SoJump's online panel pool. Table 3.12 presents a profile of the respondents.

Table 3.12 Profile of respondents (N=809)

Characteristics	Frequency	Percentage (%)
Gender		
Female	418	51.7
Male	391	48.3
Age (years)		
18 to 30	312	38.6
31 to 40	372	46.0
41 to 50	94	11.6
50+	31	3.8
Education		
Junior High School	1	0.1
Senior High School	22	2.7
Bachelors Degree	653	80.7
Masters Degree	122	15.1
PhD Degree	9	1.1
Other	2	0.3
Social Status		
Student	13	1.6
Employed for wages	607	75.0
Self-employed	68	8.4
Education	51	6.3
Government and Public Administrator	49	6.1
Other	21	2.6
Home city		
First-tier	406	50.2
Second-tier	306	37.8
Third-tier	48	5.9
Other	49	6.1

A larger sample size (809) was selected in this online survey than the onsite survey. There were three reasons for this. Firstly, a bigger sample size provides more reliable results. Secondly, the population of online respondents (i.e., Chinese tourists who had overseas travel experience in the past 12 months) was larger than the onsite population (Chinese tourists who stayed on Tangalooma Island for at least one night). Thirdly, it was much more convenient and less time-consuming to collect data online than onsite. A total of 809 complete and valid online questionnaires were returned.

As can be seen from the table, the sample exhibited a more equal gender split than the onsite sample collected in phase 2. Participants aged 18 to 40 years made up a majority of the sample (i.e., 84.6% of the total sample). A majority of participants (80.7%) had completed a Bachelors Degree at the time of study. Most participants were employed for wages (75.0%). Among all the participants, 88% of participants came from first-tier (e.g., Beijing, Shanghai, Guangzhou) and second-tier (e.g., Hangzhou, Nanjing, Wuhan) cities.

Data were also collected on the outbound travel characteristics of respondents and the findings are presented in Table 3.13.

Table 3.13 Respondents' outbound travel profiles (N=809)

Travel characteristics	Frequency	Percentage (%)
Other overseas in the last 12 months		
No previous overseas travel experience	24	3.0
1 to 2 times	258	31.9
3 to 4 times	320	39.6
More than 4 times	207	25.5
Last destination visited in the past 12 months		
South East Asia	229	28.3
South Korea	242	29.9
Japan	192	23.7
America	52	6.4
Europe	23	2.8
Australia and New Zealand	53	6.6
Other	18	2.3
Length of travel		
Less than one week	280	34.6
1 to 2 weeks	487	60.2
More than 2 weeks	42	5.2
Pattern of travel		
Independent traveller	419	51.8
Organised group	356	44.0
Visiting friends or relatives	31	3.8
Other	3	0.4

As can be seen from Table 3.12, the three most popular destinations visited were South East Asian countries (e.g., Thailand, Singapore and Vietnam), South Korea and Japan. Most of the participants

travelled for 1 to 2 weeks. More than half of all travellers in the sample travelled independently (51.8%) while most of the remainder travelled as part of an organised tour group (44.0%).

3.7 Data analysis

Both correlation and regression analysis were conducted to test the relationships between variables. Correlation analysis examines the linear relationship between two variables and provides a measure of the strength and direction of a relationship. The direction of relationship can be positive or negative. A positive relationship indicates that one variable increases as the other decreases, while a negative relationship indicates that one variable increases as the other increase (Vogt & Johnson, 2011). However, correlation analysis does not predict causality in the relationship (Vogt & Johnson, 2011). Regression analysis assesses the causal relationship between a dependent variable and one or more independent variables. Regression analysis goes beyond correlation analysis by inferring causal relationship between variables and predicting the value of depended variables from a given a value of independent variables (Draper & Smith, 2014; Vogt & Johnson, 2011).

Partial correlation analyses were conducted as they provide a measure of the relationship between two random variables after controlling for the effects of a set of variables other than the two primary variables (Cohen, West, & Aiken, 2014). To examined the influence of Social Desirability Bias, a partial Pearson correlation analysis was conducted while statistically controlling for Social Desirability Bias (SDB). Hierarchical multiple regression was conducted to control for social desirability bias as well. Hierarchical regression is a way to show the amount of variance explained by independent variables after accounting for all other variables (Draper & Smith, 2014). In this study, SDB was treated as a covariate when performing regression analysis. The ENTER method was used as it allows researchers to run the regression analysis whilst controlling the influence of SDB. It should be noted that linear regression was conducted to explore the relationships between interval or ratio independent variables and interval or ratio dependent variable. Logistic regression extends regression analysis to include binary or discrete dependent variable.

In the onsite study, linear regression analysis was conducted between values-attitudes, while logistic regression was conducted to explore the relationships between values-individual behaviours and attitudes-individual behaviours. In the online study, linear regression analysis was conducted between values-attitudes, values-environmental behaviours, attitudes-environmental behaviours. Logistic regression was conducted between values-individual nature-based activities participation

and attitudes-individual nature-based activities participation. Descriptive results (e.g., frequency, median, mean, and standard deviation) for all variables are shown in the Appendix 15.

3.8 Validity and reliability

A research design needs to accommodate the issue of the credibility of research findings. In order to improve credibility, attention must be paid to two particular emphases in research design—validity and reliability (Creswell, 2014; Jennings, 2010; Veal, 2011). *Validity* is concerned with whether the findings truly reflect what they are intended to be about. In other words, it refers to the consistency between an operational definition and the concept it is aimed to measure (Veal, 2011). *Reliability* refers to the extent to which the data collection techniques or analysis procedures will yield consistent findings; that is, it is concerned with questions of stability and internal consistency (Creswell, 2014). Table 3.14 summarises six types of validity and reliability.

Table 3.14 Validity and Reliability

Validity and Reliability	Definition
Internal validity	It refers to "how accurately the characteristics of the phenomena being studied are represented by the variables used and the data collected" (Veal, 2011, p. 46).
External validity	It is concerned with generalisability and representativeness and refers to the approximate validity with which the results of the research can be generalised to and across different types of populations, settings and times (Bryman, 2012).
Face validity	It is the extent to which a test is subjectively viewed as measuring what it is supposed to measure (Creswell, 2014; Jennings, 2010).
Criteria validity	It also known as predictive validity and is concerned with whether the established measures can predict the potential outcomes (Creswell, 2014; Jennings, 2010).
Content validity	It refers, not to whether the test "looks valid" (i.e., face validity), but to the extent to which a measure represents all the meanings associated with a construct (Jennings, 2010).
Construct validity	It assesses whether the indicators of a construct are theoretically sound (Jennings, 2010).
Reliability	It refers to the extent to which the data collection techniques or analysis procedures will yield consistent findings (Creswell, 2014).

To achieve *internal validity* in the current study, measurement scales (i.e., Chinese cultural value scales) were tested in the scale evaluation study before being used in the follow-up studies. The draft questionnaire was also pilot-tested before deployment for the main data collection. *External validity* depends on the selection of the sample. Due to time and resource constraints, it is challenging to design a study using a diverse sample of participants and settings across several different populations and time periods. Discussions in section 3.8 map the research limitations and potential generalisability of this research. *Face validity* was achieved in the current study by using a bilingual translation panel and a pilot test to ensure that each question accurately measured the

concept it proposed to measure. A scale evaluation survey was conducted to ensure *construct validity* (see Section 3.4.1). Existing scales were used to ensure *content validity*.

Reliability can be assessed by posing the following three questions: 1) "Will the measures yield the same results on other occasions?" 2) "Will similar observations be reached by other observers?" 3) "Is there transparency in how sense was made from the raw data?" (Easterby-Smith, Thorpe, & Jackson, 2008, p. 109). One way to ensure internal consistency is to calculate Cronbach's alpha. An acceptable Cronbach's alpha coefficient is greater than 0.7 (Easterby-Smith et al., 2008). Therefore, to ensure measurement reliability, Cronbach's alpha was calculated for constructs used in this research. They all met the threshold for reliability (section 3.5).

3.9 Ethical considerations and ethics approval

Saunders et al. (2007) explain that research ethics involves questions that relate to how researchers formulate and clarify the research topic; design and research, collect, process and store the data; analyse the data; and write up the findings in a moral and responsible way. Ethical issues arise throughout the whole process of conducting research. Four problem areas have been identified in the literature. These most often concern the ethical treatment of human subjects; that is, potential harm, lack of informed consent, deception and privacy invasion (Babbie, 2010; Bryman, 2012; Jennings, 2010).

Ethical researchers recognise that the first right of any participant in a research project is the right to personal safety (Jennings, 2010). Therefore, the foundation of conducting research involving humans is to respect such rights. Research that may endanger the life or physical health of a research participant is simply not acceptable in the social science community. While this issue of harm is not always simple to define and predict, the nature of social science research projects means that physical harm to subjects is highly unlikely. To minimise the likelihood of harm, participants involved in this research were informed of any reasonable or foreseeable risks or discomfort before the study began. The present study did not deal with topics that were likely to cause physical or psychological harm or discomfort. Participants were advised that they could withdraw from the study at any time without any repercussions. This was detailed in the Ethical Clearance Form submitted to The University of Queensland.

The second issue concerns informed consent. For moral and legal reasons, subjects should not be coerced into participating in social research (Burns, 2000). To ensure that participants did not feel

they had been forced to join the research, all were informed that their participation was voluntary. They were also provided with enough information about the research to make an informed decision about whether to participate or not. As mentioned previously, all the participants were told that they were free to withdraw from the study at any time.

Deception is the third area of ethical concern and is in some ways the most controversial. Although deception violates the moral obligation that people have towards one another to tell the truth, it is an accepted practice in social research (Singleton & Straits, 2010). In the current research, participants were not told the real purpose of the study and instead were given only a general idea of the research aim. If participants knew the true aim of a study, they may have acted to present the most favourable impression of themselves or to help the researcher by confirming the hypotheses. As mentioned previously, the principle of informed consent does not require researchers to reveal everything about a study to the research participants, provided that there is minimal risk of harm. Consequently, withholding information about the hypotheses or not revealing all the design features of a study generally would not be considered deceptive. It should be noted here that a debriefing was provided to all the participants, as it served methodological as well as ethical purposes. The debriefing included a detailed explanation of the true purpose of the study and was given after participants finished the survey.

The right to privacy, the last but not least concern, "is the individual's right to decide when, where, to whom and to what extent his or her attitudes, beliefs and behaviour will be revealed" (Singleton & Straits, 2010, p. 60). In terms of privacy, anonymity and confidentiality are two major considerations (Bryman, 2012). Obviously, information given anonymously secures the privacy of individuals when self-administered questionnaires without names attached are used. As there was no reason to collect identifying information or sensitive personal details, this issue was avoided.

Finally, to gain ethical clearance, a detailed plan of the research was submitted to the UQ Business School's Ethical Review Committee. Data collection of the scale evaluation study, onsite study and online study did not commence until ethical approval had been granted. Copies of the ethical approval and the gatekeeper approval letter are attached in Appendix 20. The research aligned with The University of Queensland's code of ethics in relation to the confidentiality, safety and retention of the data collected, statements of authorship of the research and disclosure of any potential conflicts of interest.

Chapter 4 Findings

4.1 Introduction

This chapter provides a discussion of the analysis of onsite and online data. Figure 4.1 provides a conceptual framework of the key relationships that were tested in this chapter.

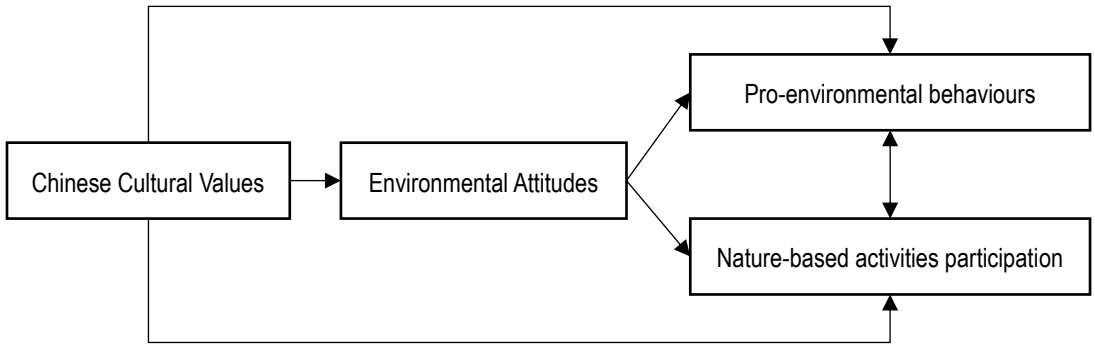

Figure 4.1 Value-Attitude-Behaviour model

Correlation and regression analyses were conducted to explore the relationships between variables for both the onsite (phase 1) and online (phase 2) studies. In addition, qualitative results for the onsite sample (phase 1) are discussed at the end of section 4.2.

4.2 Phase 1: Onsite Results

This section provides a summary of the data collected onsite at Tangalooma Island Resort. Validity and reliability tests of the scales, regression analysis and qualitative data results are presented, followed by an investigation of the relationships between values, attitudes, behaviours. Descriptive results for all variables are shown in the Appendix 15. As shown in the descriptive results, three most valued Chinese cultural value items were honesty, sense of obligation, and self-discipline. The environmental attitudes of onsite sample were quite positive (i.e., mean larger than 3.3 out of 5). The most participated pro-environmental behaviours was ‘placed rubbish in the bins provided’, while the most participated nature-based activity was ‘wild dolphin feeding’.

4.2.1 Construct validity and reliability testing

Exploratory factor analysis was conducted to investigate the validity of the scales used in this research to measure Chinese cultural values. Cronbach's alpha was used to analyse the internal consistency (reliability) of the scale and sub-scales.

The Kaiser-Meyer-Olkin (KMO) value of Chinese cultural values scale was 0.87, which exceeded the cut-off value of 0.50 (Kaiser, 1974), indicating a desirable sampling adequacy. The Bartlett's Test of Sphericity was significant ($p < 0.001$), indicating sufficient correlations among selected variables. Individual items were deleted if the factor loading was lower than the cut-off point of 0.50. A total of 23 items remained from original 26 value items identified in pilot study (i.e., value items 'live in the moment', 'easy and comfortable', and 'courtesy and morality' were eliminated). Table 4.1 shows the results of the principal component analysis using the Varimax rotation method.

Table 4.1 Principal component matrix of Chinese cultural values

Items	Mean (SD)	Factor loading	Cronbach α
Factor 1: Self-cultivation	*6.06 (0.87)*		0.88
Self-discipline	6.29 (1.08)	0.75	
Industry (working hard)	6.16 (1.16)	0.74	
Down-to-earth	5.99 (1.29)	0.71	
Sense of obligation	6.43 (1.01)	0.71	
Planning	5.80 (1.35)	0.69	
Being considerate of others	5.99 (1.19)	0.69	
Harmony	6.09 (1.24)	0.67	
Knowledge and education	6.22 (1.11)	0.66	
Stability and security	5.61 (1.47)	0.65	
Factor 2: Enjoyment	*5.00 (1.21)*		0.79
Indulgence	4.85 (1.61)	0.79	
Fashion	4.58 (1.68)	0.75	
Liberation	5.20 (1.49)	0.73	
Leisure	5.38 (1.44)	0.73	
Factor 3: Complacency	*3.71 (1.27)*		0.75
Complacency	3.62 (1.75)	0.78	
Compromise	3.99 (1.62)	0.72	
Conformity	3.54 (1.69)	0.72	
Non-competitiveness	3.69 (1.70)	0.70	
Factor 4: Self-interest	*3.02 (1.43)*		0.84
Fame and fortune	3.26 (1.70)	0.87	
Self-interest	3.31 (1.65)	0.83	
Ostentation	2.49 (1.60)	0.77	
Factor 5: Moral discipline	*6.24 (0.85)*		0.60
Kindness	6.06 (1.22)	0.70	
Honesty	6.71 (0.77)	0.63	
Respect for history	5.95 (1.34)	0.58	

The factor solution generated five factors with eigen values above 1. Based on the characteristics of the items in each component, the five factors were named self-cultivation, enjoyment, self-interest, complacency and moral discipline. Cronbach's alpha was above 0.6 for all factors, indicating that

the dimensions had high internal consistency. The dimensions were similar to those in the pilot study, except for some minor changes (see Appendix 19). As shown in Appendix 19, the down-to-earth and self-cultivation dimensions in the pilot study were merged into one dimension in the onsite study with a higher internal consistency. For the rest of the factors, the items in each factor were almost the same with only a few items removed (e.g., easy and comfortable and live in the moment). The reliability of the environmental attitude scale (NEP), pro-environmental behaviours and nature-based activity participation was also tested, resulting in alpha scores of 0.75, 0.64 and 0.75 respectively.

4.2.2 Relationships between values, attitudes, behaviours

A partial Pearson correlation was conducted while statistically controlling for Social Desirability Bias (SDB). Table 4.2 shows the correlation among value variables (i.e., self-cultivation, enjoyment, self-interest, complacency, moral discipline) and environmental attitudes measured by the NEP). For each of the value factors and NEP, a composite variable was created by calculating a mean score. Pro-environmental behaviours and nature-based activities participation were not included in the correlation matrix because they were dichotomous variables.

Table 4.2 Partial correlation of Chinese cultural value factors and environmental beahviours (controlling for SDB responses)

		1	2	3	4	5	6
1	Self-cultivation	-					
2	Enjoyment	**0.27**	-				
3	Complacency	0.07	**0.24**	-			
4	Self-interest	**-0.12**	**0.27**	**0.24**	-		
5	Moral discipline	**0.53**	**0.19**	0.07	**-0.20**	-	
6	NEP	0.11	0.03	**-0.13**	**-0.19**	**0.17**	-

Bold text indicates items were significant at $p < 0.01$ (2-tailed)

As can be seen from Table 4.2, there was a significant negative correlation between complacency and environmental attitudes (-0.13), and self-interest and environmental attitudes (-0.19). A significant positive correlation was found between moral discipline and environmental attitudes (0.17).

Linear regression was conducted to explore the relationship between values and environmental attitudes. Table 4.3 shows the relationship between the five value dimensions and environmental attitudes.

Table 4.3 Regression of Chinese cultural values on environmental attitudes

Dependent variable	Independent variable	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	VIF
		B	SE	Beta			
Environmental attitudes (controlled for SDB)	Constant	3.62	0.25		14.81	0.00	
	SDB	0.01	0.01	0.03	0.62	0.54	1.06
	Self-cultivation	0.01	0.04	0.01	0.25	0.80	1.52
	Enjoyment	0.03	0.02	0.07	1.45	0.15	1.24
	Complacency	-0.05	0.02	-0.12	-2.57	0.01	1.11
	Self-interest	-0.06	0.02	-0.16	-3.21	0.00	1.26
	Moral discipline	0.08	0.04	0.12	2.33	0.02	1.49
R	0.27		**F**	6.59			
Adjusted R^2	0.06		**Sig.**	0.00			

A multicollinearity test found that the VIF was between 1 and 2 (*tolerance >0.2*), which indicates multicollinearity is not a concern; thus, the regression analysis is valid (Field, 2009). A significant result was found (*F(6,498) = 6.59, p<.00*), with an R of 0.27 and adjusted R^2 of 0.06. The model explained 6% of the variance. Three value factors (self-interest, complacency, and moral discipline) were significant predictors of environmental attitudes.

Logistic regression was conducted to explore the relationship between values and behaviours. Table 4.4 shows the relationship between the five value dimensions and pro-environmental behaviours and nature-based activities participation. Statistics are only reported for dependent variables that had at least one significant predictor.

Table 4.4 Logistic Regression of Chinese cultural values on pro-environmental behaviours and nature-based activities participation.

	SDB	Self-cultivation	Enjoyment	Complacency	Self-interest	Moral discipline	R^2	Sig.
Pro-environmental behaviours								
Turned off tap while brushing teeth to save water.	0.02	-0.25	-0.11	-0.14	-0.01	0.63*	0.04	0.44
Switched off television when not in the room.	0.02	0.61*	0.04	-0.39	-0.16	-0.18	0.07	0.24
Recycled products whenever possible.	0.12	-0.72	-0.10	-0.22	0.04	0.83*	0.07	0.18
Nature-based activities participation								
4WD Car Hire	0.03	0.11	-0.01	-0.22	-0.05	0.51*	0.07*	0.04
Whale Watch Cruise	-0.04	0.34*	-0.04	-0.04	-0.01	-0.16	0.02	0.26
Sunset cruise	-0.17*	-0.47*	0.14	-0.15	0.07	0.52*	0.07**	0.01

*p<0.05, **p<0.01

As can be seen from Table 4.4, self-cultivation had a significant and positive influence on 'switched off television when not in the room' and participating in 'whale watching cruise'. Moral discipline had a significant and positive influence on 'turned off tap while brushing teeth to save water', 'recycled products whenever possible', and participating in activities like '4WD car hire' and 'sunset cruise'. No significant relationships were found between enjoyment and complacency and any of the behaviours.

Logistic regression analysis was conducted to explore the relationship between environmental attitudes and pro-environmental behaviours and nature-based activities participation. Results are shown in Table 4.5.

Table 4.5 Logistic Regression of environmental attitudes on pro-environmental behaviours and nature-based activities participation.

Attitudes-Behaviours		**SDB**	***NEP***	**R^2**	**Sig.**
Pro-environmental behaviours	Switched off the television when I was not in the room.	0.03	1.14*	0.06*	0.03
	Recycled paper/plastic/glass products whenever possible	0.11	1.01*	0.07*	0.02
Nature-based activities participation	ATV Quad Bike Tours	0.04	0.38*	0.02	0.07
	Beach biking	0.01	0.66*	0.03	0.11
	Segway tour	0.03	0.83*	0.04	0.07
	Guide walk & presentation	-0.10	0.86*	0.04*	0.04
	Fish feeding Tour at Wrecks	-0.09*	0.49*	0.03*	0.01
	Scuba diving	0.04	0.81**	0.04*	0.02

*p<0.05, **p<0.01

Environmental attitudes were a significant predictor of only two out of seven pro-environmental behaviours with an R^2 of 0.06 and 0.07 respectively and six out of sixteen nature-based activities participation.

To sum up, there were significant relationships between Chinese cultural values and environmental attitudes, Chinese cultural values and three pro-environmental behaviours, Chinese cultural values and participation in three nature-based activities, environmental attitudes and two pro-environmental behaviours, and environmental attitudes and participation in six nature-based activities. All these relationships were weak (R^2 lower than 0.10). The results from the on-site survey support the VAB model, but the results were weak and some predicted relationships were not confirmed.

4.2.3 Pro-environmental behaviour and nature-based activity participation

Participants who indicated that they did not engage in pro-environmental behaviour or participate in nature-based activities were asked to explain why. Table 4.8 presents a synthesis of the main themes evident in the qualitative responses provided by respondents.

Twenty-three participants indicated that they did not save water during their stay at Tangalooma because self-interest was the first priority. For example, one participant indicated "When I am taking a shower during the trip, the objective is to clean myself, so I don't think too much about saving water." Thirteen participants said they were not conscious of saving water during the trip. For instance, one participant wrote, "I do not think about saving water when I am taking shower." Seven participants indicated that "Taking shower is enjoyable and relaxing and I like to take my time to enjoy taking a shower." For energy savings, sixteen participants indicated that they forgot to switch off the lights/air-conditioner/televisions when they were leaving the room. Nine participants explained they wanted to keep the temperature constant by keeping the air-condition/heat on. For example: "I will leave the air-conditioner on when I am leaving the room as I want to keep the temperature constant, so I won't feel hot when I come back from outside in summer." In terms of waste management behaviours, four participants indicated that they lacked knowledge about recycling. For example: "I do really want to do recycling as I know it is good for environment, but I do not have relevant knowledge, like I do not know how to classify different types of waste." Three participants indicated that they could not find a recycling bin at Tangalooma Island Resort.

Table 4.6 Reasons for not participating in pro-environmental behaviours

Behaviours	Reasons	Frequency	Percentage (%)
Water saving	My self-interest (cleaning and convenience) is the first priority	23	4.6
	I am not aware of the need to save water	13	2.6
	Taking showers is enjoyable	7	1.4
	I had a short shower but not to save water	4	0.8
	I am lazy	1	0.2
	There are a lot of different ways to save water	1	0.2
Energy saving	I forgot	16	3.2
	I wanted to keep the temperature constant (for self-interest)	9	1.8
	I was just leaving for a short time	7	1.4
	The air conditioner was automatic	6	1.2
	I want some fresh air in the room (for self-interest)	3	0.6
	Electricity is renewable, so we do not need to save it	3	0.6
	It depends on the weather	2	0.4
	I could not find the switch	2	0.4
	I am not aware of the need to save energy	2	0.4
	I used the air-condition to dry my clothes	1	0.2

Waste management	I do not have knowledge about recycling	4	0.8
	I did not find the recycling bin	3	0.6
	I do not care about recycling	1	0.2
	I do not have time	1	0.2
	It is troublesome	1	0.2

Table 4.6 provides a synthesis of the reasons provided by respondents for not participating in the nature-based activities provided at Tangalooma Island Resort. The major themes from the qualitative responses have been classified into internal (factors within the respondent) or external (factors related to the setting or the activity).

Table 4.7 Reasons for not participating in nature-based activities

Type of reasons	Reasons	Frequency	Percentage (%)
Internal reasons	I have participated in this activity before	143	28.3
	Just want to have a rest	117	23.2
	Not interested	113	22.4
	Will do it in somewhere else (e.g., Cairns)	81	16.0
	I am too old	78	15.4
	Do not swim	65	12.9
	Fear/I am afraid	48	9.5
	I do not want to get wet	42	8.3
	My children are too young to participate in most of the activities	3	0.6
	I do not speak English	1	0.2
External reasons	Not enough time	238	47.1
	Ticket price is too expensive	186	36.8
	Water is too cold	153	30.3
	Some of the activities are too risky	76	15.0
	Sun is too hot	67	13.3
	Activities are boring	48	9.5
	Too crowded	39	7.7
	Did not hear about it	39	7.7
	Booking process was not clear	27	5.3
	Bad weather	12	2.4
	Nowhere to take a shower	1	0.2

As can be seen, 143 participants (28 % of the sample) mentioned that they did not want to repeat nature-based activities that they had experienced before. For example: “I participated in this activity before I came to Tangalooma, so I don't want to do this again.” A large number (117 participants) indicated that they just wanted to have a rest, therefore they were not interested in participating in outdoor activities. Instead of participating in nature-based activities at Tangalooma, eighty-one participants indicated that they would prefer to undertake the same activities in a destination that was more famous than Tangalooma. For example: “My next stop is Cairns, I am planning to do this activity there because Cairns is more famous than Tangalooma.” Some participants mentioned that

they were afraid to participate in activities that were perceived to involve high risk, like parasailing, sand tobogganing and scuba diving due to a range of reasons (e.g., too old, do not swim, poor health).

In terms of external reasons, more than two hundred participants (47% of the sample) indicated that they did not have enough time to participate in activities. Most likely this was because most participants were staying at Tangalooma for only one night. For example: "I have stayed at Tangalooma for only one night, so I do not have enough time to participate in most of the activities they provide. Time is too short!"

Almost two hundred participants mentioned that the cost for some activities was too expensive. One participant wrote: "The ticket is too expensive, so I do not want to spend that much money on participating activities. I would rather stay on the beach." Cold water was the third most frequently mentioned reason for not participating in nature-based activities. For example: "The weather is good, but the water is too cold, that is why I have not participated in any activities on or under water (e.g., dolphin feeding, scuba diving and snorkelling)." It should be noted here that data collection was conducted during the month of October which is spring in Australia.

4.2.4 Conclusion

In summary, there were some significant relationships between variables based on responses from the onsite sample but these relationships were weak and some predicted relationships were not significant. Overall, the findings were disappointing but further investigation of the dataset revealed that the types of travellers visiting Tangalooma Island Resort were quite homogenous in their demographic profile, attitudes, values and behaviours. The collection of data from a single site reduced the diversity of respondents, making it difficult to detect interactions between different variables. To overcome this limitation a second dataset was collected from a more diverse and heterogeneous sample of Chinese travellers. Results from this online data collection are discussed in the following section.

4.3 Phase 2: Online Results

This section provides a detailed discussion of the data collected using the SoJump online panel. Respondents' profile, validity and reliability test of the scales and the relationship between values, attitudes and behaviours will be presented in following sub-sections. Detailed descriptive results for all variables are shown in Appendix 17. As indicated in descriptive results, three most valued

Chinese cultural value items were honesty, sense of obligation, and working hard. The environmental attitudes of online sample were quite positive (i.e., mean larger than 3.3 out of 5). The most frequent participated pro-environmental behaviours was 'did not collect flowers, shells, coral or other items to take home', while the most participated nature-based activity was 'taking pictures of natural scenery'.

4.3.1 Construct Validity and reliability testing

Chinese cultural values

Before performing a factor analysis, a Kaiser-Meyer-Olkin (KMO) value and Bartlett's test should be conducted to determine if the data is suitable for factor analysis. According to Field (2009), a KMO value approaching one means the data are suitable for factor analysis. The KMO value for the Chinese cultural values scale was 0.90, which exceeded the cut-off value of 0.50 (Kaiser, 1974), indicating a desirable sampling adequacy. The Bartlett's test of sphericity was significant ($p < 0.001$), indicating sufficient correlations among selected variables. Items were deleted if the factor loading was lower than the cut-off point of 0.50. A total of 22 items were retained from 26 items identified in pilot study. Table 4.8 shows the results of principal component analysis using the Varimax rotation method with convergence after six rotations. Since it was expected that there was no significant intercorrelations between factors, Varimax rotation was considered to be the best suited to the dataset.

As shown in Table 4.8, the 22 items were classified into four factors. The factors were labelled according to the strongest loading item in each factor. Moreover, the overarching theme for each factor was also considered when labelling the factors. For instance, honesty, sense of obligation, working hard, planning and knowledge are all values related to the pursuit of self-cultivation. Indulgence, liberation and leisure are values which are related to enjoyment and hedonism. Cronbach's α coefficient was higher than 0.70 for all factors, which means the scale has good reliability. Also, these factors were very similar to what was expected based on testing of the scale in the onsite study.

It should be noted that in Phase 2 the value dimensions 'self-cultivation' and 'moral discipline' identified in the onsite study were combined into one dimension that was labelled 'self-cultivation'. This difference in the way participants responded is likely because the online sample was larger and more diverse than the onsite sample. The 'Complacency', 'Enjoyment', and 'Self-interest' value dimensions contained exactly the same value items in both phases. The factor structure identified in

the online study was more comprehensive and solid than the one in the onsite study and the factors displayed higher internal consistency (see Appendix 19).

Table 4.8 Principal component matrix of Chinese cultural values

Items	Mean (SD)	Factor loading	Cronbach α
Factor 1: Self-cultivation	*6.00 (0.67)*		0.90
Honesty	6.34 (0.90)	0.76	
Sense of obligation	6.19 (0.92)	0.75	
Down-to-earth	5.96 (0.96)	0.75	
Self-discipline	6.06 (0.92)	0.73	
Industry (working hard)	6.10 (0.92)	0.70	
Harmony	5.98 (0.97)	0.69	
Knowledge and education	5.96 (0.94)	0.67	
Courtesy and morality	5.99 (0.93)	0.66	
Planning	5.88 (1.00)	0.64	
Kindness	5.95 (1.05)	0.61	
Being considerate of others	5.62 (1.00)	0.59	
Factor 2: Complacency	*3.98 (1.09)*		0.81
Complacency	4.15 (1.37)	0.80	
Non-competitiveness	3.80 (1.41)	0.79	
Compromise	3.95 (1.33)	0.76	
Conformity	4.02 (1.37)	0.74	
Factor 3: Enjoyment	*5.30 (0.80)*		0.74
Indulgence	5.08 (1.18)	0.75	
Liberation	5.41 (1.00)	0.73	
Fashion	5.27 (1.10)	0.70	
Leisure	5.44 (1.00)	0.68	
Factor 4: Self-interest	*3.74 (1.26)*		0.79
Fame and fortune	4.26 (1.46)	0.87	
Ostentation	3.26 (1.57)	0.72	
Self-interest	3.69 (1.48)	0.70	

Environmental attitudes scale

Because the NEP scale is considered to be a unidimensional scale (Hawcroft & Milfont, 2010), it is treated as a one-factor measurement in this study. Table 4.9 shows the reliability results of the environmental attitudes scale (NEP). The Corrected Item-Total Correlation (CITC) value and Cronbach's alpha value of the full scale is shown in the table. Some of the items had a lower CITC value than 0.5. However, the reliability of the scale was 0.78, which is greater than 0.7. The mean value of the NEP was 3.85 (SD = 0.50). Thus, the reliability of the NEP scale is acceptable for this research.

Table 4.9 Reliability Test of Environmental Attitudes (NEP)

Items	Mean (SD)	Corrected Item-Total Correlation (CITC)
We are approaching the limit of the number of people the earth can support.	3.96 (0.73)	0.28
Humans have the right to modify the natural environment to suit their needs. (reverse-coded)	3.26 (1.19)	0.47
When humans interfere with nature it often produces disastrous consequences.	4.26 (0.73)	0.41
Humans are severely abusing the environment.	4.22 (0.77)	0.41
The earth has plenty of natural resources if we just learn how to develop them. (reverse-coded)	3.06 (1.17)	0.35
Plants and animals have as much right as humans to exist.	4.30 (0.72)	0.40
The balance of nature is strong enough to cope with the impacts of modern industrial nations. (reverse-coded)	3.40 (1.19)	0.56
Despite our special abilities humans are still subject to the laws of nature.	4.21 (0.74)	0.34
The so-called ecological crisis facing humankind has been greatly exaggerated. (reverse-coded)	3.71 (1.16)	0.57
The earth is like a spaceship with very limited room and resources.	4.06 (0.81)	0.34
Humans were meant to rule over the rest of nature. (reverse-coded)	3.39 (1.18)	0.54
The balance of nature is very delicate and easily upset.	4.07 (0.77)	0.31
If things continue their present course, we will soon experience a major ecological catastrophe.	4.15 (0.77)	0.37

Pro-environmental behaviours

The Kaiser-Meyer-Olkin (KMO) value for pro-environmental behaviours was 0.82, which indicated the data were adequate for factor analysis. The Bartlett's Test of Sphericity was significant ($p < 0.001$), indicating sufficient correlations among selected variables. Factors were deleted if the factor loading was lower than the cut-off point of 0.50. A total of 12 items remained. Table 4.12 shows the results of principal component analysis using the Varimax rotation method with convergence achieved after three rotations.

As can be seen from Table 4.10, pro-environmental behaviours were divided into two factors, labelled 'convenient pro-environmental behaviours' and 'inconvenient pro-environmental behaviours'. All the factors were named with reference to the difficulty level of implementing pro-environmental behaviours. Also, these two types of pro-environmental behaviours were labelled following a Chinese way of thinking. That is, behaviours which are less time consuming and less expensive are convenient, whilst behaviours which are expensive and time consuming are inconvenient. For example, placing rubbish in the bins provided and not collecting flowers are pro-environmental behaviours that require little effort and are unlikely to result in any inconvenience. On the contrary, picking up someone else's litter and reading nature or environmental magazines

require more time or effort to perform. Table 4.12 shows the internal consistency of pro-environmental behaviours. The reliability of each sub-scale was higher than 0.7. Thus, the reliability of pro-environmental behaviours scale was acceptable for this study.

Table 4.10 Principal component matrix of pro-environmental behaviours

Items	Mean (SD)	Factor loading	Cronbach α
Factor 1: Convenient behaviours	3.52 (0.42)		0.74
I switched off the light whenever leaving a room	3.58 (0.62)	0.76	
I switched off the heating/cooling in unoccupied rooms	3.49 (0.65)	0.71	
I did not collect flowers, shells, coral or other items to take home	3.80 (0.40)	0.67	
I placed rubbish in the bins provided	3.54 (0.69)	0.65	
I used public transport instead of the car	3.35 (0.70)	0.60	
I closed doors and windows to avoid heat/coolness escaping	3.36 (0.69)	0.54	
Factor 2: Inconvenient behaviours	2.87 (0.53)		0.72
I recycled cans or bottles	2.86 (0.86)	0.71	
I looked for ways to reuse things	3.00 (0.79)	0.71	
I picked up litter that was not my own	2.30 (0.92)	0.68	
I read nature or environmental magazines	2.81 (0.85)	0.67	
I re-used bags from home when going shopping	3.05 (0.84)	0.51	
I bought products that protect the environment	3.23 (0.66)	0.51	

4.3.2 Relationships between values, attitudes and behaviours

After testing validity and reliability of the variables, the correlations between variables were analysed. For each of the value factors, NEP items, and convenient- and inconvenient- pro-environmental behaviours, a composite variable was created by calculating the mean score. Nature-based activities participation was not included in the correlation matrix because it is a dichotomous variable. A partial Pearson correlation was conducted while statistically controlling for Social Desirability Bias (SDB). A strong correlation may indicate a relationship but does not predict the direction of a relationship.

Table 4.11 Partial correlation of variables (controlling for SDB responses)

		1	2	3	4	5	6	7
1	Self-cultivation	-						
2	Complacency	-0.08	-					
3	Enjoyment	**0.39**	**0.18**	-				
4	Self interest	**-0.13**	**0.45**	**0.23**	-			
5	NEP	**0.51**	**-0.29**	0.02	**-0.29**	-		
6	Convenient pro-environmental behaviours	**0.57**	**-0.19**	**0.14**	**-0.24**	**0.60**	-	
7	Inconvenient pro-environmental behaviours	**0.31**	0.01	**0.26**	-0.02	**0.24**	**0.19**	-

Bold text indicates items were significant at $p < 0.01$ (2-tailed)

As can be seen from Table 4.11, the self-cultivation value dimension is significantly and positively correlated with environmental attitudes and all types of behaviours measured in this study. Positive and significant correlations were also found between the enjoyment value dimension and three types of behaviours. However, self-interest was negatively correlated with both environmental attitudes and inconvenient pro-environmental behaviours.

After examining the correlations between variables, regression analyses were conducted to further explore the relationships between the variables and to achieve the research objectives of the study. In addition, the mediation effect of environmental attitudes was also tested. Hierarchical multiple regression analysis was conducted to control for social desirability bias. In addition, to test for multicollinearity, the Variance Inflation Factors (VIF) were tested. This was considered necessary as multicollinearity can increase standard errors and make the variance of the regression coefficients unstable (Takezawa, 2014). The VIF measures the degree to which the estimated regression coefficients have been inflated in a regression analysis (Takezawa, 2014). According to Field (2009), if the VIF is greater than 10, there is cause for concern. Moreover, a tolerance score below 0.2 indicates a potential problem (Field, 2009). Results of these tests are discussed in the following sections.

The influence of Chinese cultural values on environmental attitudes

There was a positive relationship between self-cultivation and environmental attitudes and a negative correlation between complacency/self-interest and environmental attitudes. A hierarchical multiple linear regression was conducted to predict environmental attitudes based on self-cultivation, complacency, enjoyment and self-interest while controlling for SDB responses (see Table 4.12). The SDB variable was entered into the independent variable column (the first block) as a control variable.

The multicollinearity test found that the VIF was between 1 and 2 (*tolerance >0.2*), which indicates multicollinearity is not a concern; thus, the regression analysis is valid (Field, 2009). A significant result was found ($F(5,803) = 105.64$, $p<.000$), with an R of 0.63 and adjusted R^2 of 0.39. The model explained 39% of the variance. All four Chinese cultural values were significant predictors of environmental attitudes. However, only one value factor (self-cultivation) was strong and positive, while the others were weak and negative.

Table 4.12 Regression of Chinese cultural values on environmental attitudes

Dependent variable	Independent variable	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	VIF
		B	SE	Beta			
Environmental attitudes (controlled for SDB)	Constant	2.26	0.15		15.19	0.00	
	SDB	0.01	0.01	0.05	1.66	0.10	1.18
	Self-cultivation	0.40	0.02	0.54	16.65	0.00	1.40
	Complacency	-0.07	0.01	-0.16	-5.15	0.00	1.31
	Enjoyment	-0.08	0.02	-0.13	-4.09	0.00	1.32
	Self interest	-0.05	0.01	-0.12	-3.54	0.00	1.45
R	0.63		**F**	105.64			
Adjusted R^2	0.39		**Sig.**	0.00			

The influence of Chinese cultural values on convenient pro-environmental behaviours

All four Chinese cultural values had significant correlation with convenient pro-environmental behaviours. A hierarchical multiple linear regression was undertaken to predict convenient pro-environmental behaviours based on self-cultivation, complacency, enjoyment and self-interest while controlling for *SDB* responses (see Table 4.13).

Table 4.13 Regression of Chinese cultural values on convenient pro-environmental behaviours

Dependent variable	independent variable	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	VIF
		B	SE	Beta			
Convenient pro-environmental behaviours (controlled for SDB)	Constant	1.74	0.13		13.90	0.00	
	SDB	0.00	0.00	-0.00	-0.10	0.92	1.18
	Self-cultivation	0.36	0.02	0.58	17.65	0.00	1.40
	Complacency	-0.03	0.01	-0.08	-2.47	0.01	1.31
	Enjoyment	-0.02	0.02	-0.04	-1.24	0.22	1.32
	Self interest	-0.04	0.01	-0.12	-3.61	0.00	1.45
R	0.62		**F**	101.66			
Adjusted R^2	0.38		**Sig.**	0.00			

As can be seen in Table 4.13, self-cultivation, complacency and self-interest were significant predictors, whilst enjoyment was not a significant predictor of pro-environmental behaviour. Self-cultivation was the most important predictor and the only one that was positive. A significant regression equation was found ($F(5,803) = 101.66$, $p<.00$), with an R of 0.62 and adjusted R^2 of 0.38. The model explained 38% of the variance. In order to provide a more detailed analysis, hierarchical regression was conducted between value factors and individual convenient pro-environmental behaviours. Statistics are only reported for dependent variables that had at least one significant predictor. Table 4.14 shows the results of the regression analysis between values and individual behaviour items.

Table 4.14 Regression of Chinese cultural values on individual convenient pro-environmental behaviours

Convenient Pro-environmental Behaviours	SDB	Self-cultivation	Complacency	Enjoyment	Self-interest	R^2	Sig.
Switched off lights whenever leaving a room	0.04	0.47**	-0.07*	-0.06	-0.05	0.25**	0.00
Switched off the heating/cooling in unoccupied rooms	0.01	0.42**	-0.07	-0.02	-0.06	0.21**	0.00
Did not collect flowers, shells, coral or other items to take home	0.00	0.32**	-0.13**	-0.04	-0.09*	0.15**	0.00
Placed rubbish in the bins provided	-0.02	0.43**	-0.07*	-0.05	-0.07	0.20**	0.00
Used public transport instead of the car	-0.03	0.35**	-0.00	0.01	-0.13**	0.16**	0.00
Closed doors and windows to avoid heat/coolness escape	-0.01	0.30**	-0.00	-0.01	-0.08*	0.10**	0.00

*p<0.05, **p<0.01

As shown in Table 4.14, self-cultivation had a significant positive influence on all the convenient pro-environmental behaviours. Conversely, Complacency had a negative influence on all of the behaviours. The behaviour with the highest coefficient value was 'did not collect flowers, shells, coral or other items to take home'. Self-interest also had a negative influence on all of the convenient pro-environmental behaviours, but was a strong predictor of 'used public transport instead of the car'. Enjoyment had no significant influence on individual convenient pro-environmental behaviours.

The influence of Chinese cultural values on inconvenient pro-environmental behaviours

As noted earlier, both Self-cultivation and Enjoyment were positively and significantly correlated with inconvenient pro-environmental behaviours. A hierarchical multiple linear regression was calculated to predict *inconvenient pro-environmental behaviours* based on *self-cultivation, complacency, enjoyment and self-interest* controlling for *SDB* responses (see Table 4.15).

Table 4.15 Regression of Chinese cultural values on inconvenient pro-environmental behaviours

Dependent variable	independent variable	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	VIF
		B	SE	Beta			
Inconvenient pro-environmental behaviours (controlled for SDB)	Constant	0.85	0.18		4.63	0.00	
	SDB	0.03	0.01	0.19	5.41	0.00	1.18
	Self-cultivation	0.20	0.03	0.25	6.56	0.00	1.40
	Complacency	0.01	0.02	0.01	0.31	0.76	1.31
	Enjoyment	0.11	0.02	0.17	4.60	0.00	1.32
	Self interest	-0.01	0.02	-0.03	-0.71	0.48	1.45
R	0.44		**F**	38.80			
Adjusted R^2	0.19		**Sig.**	0.00			

Table 4.15 indicates that self-cultivation and enjoyment were significant positive predictors, whilst complacency and self-interest (negative) were not significant predictors of inconvenient pro-environmental behaviours. A significant regression equation was found (*F(5,803) = 38.80, p<.00*), with an R of 0.44 and adjusted R^2 of 0.19. The model explained 19% of the variance.

To provide a more detailed analysis, hierarchical regression was conducted between value factors and individual inconvenient pro-environmental behaviours. As can be seen from Table 4.16, the self-cultivation and enjoyment values had a significant and positive influence on most of the inconvenient pro-environmental behaviours. Self-cultivation had the highest coefficient value for predicting whether individuals 'bought products that protect the environment'. Enjoyment value factor had the highest coefficient value for predicting 'read nature or environmental magazines'. The complacency and self-interest values had a negative, but insignificant influence on most of the inconvenient pro-environmental behaviours.

Table 4.16 Regression of Chinese cultural values on individual inconvenient pro-environmental behaviours

Inconvenient Pro-environmental Behaviours	SDB	Self-cultivation	Complacency	Enjoyment	Self-interest	R^2	Sig.
Recycled cans or bottles	0.12**	0.15**	0.03	0.11**	-0.06	0.08**	0.00
Looked for ways to reuse things	0.13**	0.19**	0.01	0.08*	0.01	0.09**	0.00
Picked up litter that was not my own	0.16**	0.02	0.05	0.13**	0.03	0.05**	0.00
Read nature or environmental magazines	0.07	0.12**	-0.01	0.18**	-0.05	0.08**	0.00
Re-used bags from home when going shopping	0.13**	0.23**	-0.01	0.06	-0.00	0.10**	0.00
Bought products that protect the environment	0.10**	0.31**	-0.05	0.10**	-0.04	0.18**	0.00

*p<0.05, **p<0.01

The influence of Chinese cultural values on nature-based activity participation

To provide a more detailed analysis of the online dataset, logistic regression was conducted between the value factors and participation in individual nature-based activities. Table 4.17 shows the results of this analysis.

Table 4.17 Regression of Chinese cultural values on individual nature-based activities participation

Nature-based activities participation	SDB	Self-cultivation	Complacency	Enjoyment	Self-interest	R^2	Sig.
Visiting wildlife parks, zoos or aquariums	0.01	0.45**	-0.10	-0.01	0.05	0.03**	0.00
Visiting botanical or other public gardens	0.01	0.40**	0.11	-0.05	-0.07	0.03**	0.01
Walking in natural area	-0.03	0.06	-0.16*	0.26*	0.02	0.02*	0.01
Participating outdoor adventure activities	0.04	0.26	-0.08	-0.09	0.17*	0.02	0.11
Participating natural sightseeing activities	-0.04	0.30*	-0.01	-0.22*	0.02	0.01	0.14
Visiting natural areas	0.03	0.33*	-0.30**	0.15	0.13	0.05**	0.00
Taking pictures of natural scenery	-0.01	0.80**	-0.35**	0.13	0.07	0.10**	0.00

*p<0.05, **p<0.01

As shown in Table 4.17, self-cultivation had a positive influence on the likelihood of participating in most of the nature-based activities. The Self-cultivation value was a particularly strong predictor of 'Taking pictures of natural scenery'. There was also a significant and positive relationship found between self-interest and participating in outdoor adventure activities. Enjoyment significantly and positively influenced participation in 'walking in natural area', while it significantly but negatively influenced participation in 'natural sightseeing activities'. A few significant but negative relationships were also found between complacency and nature-based activities participation. The highest coefficient score was for the individual behaviour 'Taking pictures of natural scenery'.

The influence of environmental attitudes on convenient pro-environmental behaviours

A hierarchical multiple linear regression was calculated to predict *convenient pro-environmental behaviours* based on *environmental attitudes* while controlling for *SDB* responses. As can be seen from Table 4.18, environmental attitudes significantly and positively correlated with convenient pro-environmental behaviours.

Table 4.18 Regression of environmental attitudes on convenient pro-environmental behaviours

Dependent variable	**Independent variable**	**Unstandardized Coefficients**		**Standardised Coefficients**	**t**	**Sig.**	**VIF**
		B	SE	Beta			
Convenient pro-environmental behaviours (controlled for SDB)	Constant	1.50	0.09		16.60	0.00	
	SDB	0.01	0.00	0.06	2.17	0.03	1.08
	Environmental attitudes	0.51	0.02	0.60	21.08	0.00	1.08
R	0.62		**F**	255.65			
Adjusted R^2	0.39		**Sig.**	0.00			

Environmental attitudes were significant predictors of convenient pro-environmental behaviours. A significant regression equation was found ($F(2,806) = 255.65$, $p<.000$), with an R of 0.62 and adjusted R^2 of 0.39. Thus, the model explained 39% of the variance.

In order to provide a more detailed analysis, hierarchical regression was conducted between environmental attitudes and individual convenient pro-environmental behaviours. Table 4.19 illustrates that environmental attitudes significantly, positively and strongly influenced all the individual convenient pro-environmental behaviours (B>0.30). This relationship was strongest for the item 'switching off the light whenever leaving a room'.

Table 4.19 Regression of environmental attitudes on individual convenient pro-environmental behaviours

Convenient Pro-environmental Behaviours	SDB	NEP	R^2	Sig.
Switched off the light whenever leaving a room	0.09**	0.45**	0.23**	0.00
Switched off the heating/cooling in unoccupied rooms	0.06	0.44**	0.21**	0.00
Did not collect flowers, shells, coral or other items to take home	0.04	0.41**	0.18**	0.00
Placed rubbish in the bins provided	0.03	0.43**	0.19**	0.00
Used public transport instead of the car	0.03	0.34**	0.13**	0.00
Closed doors and windows to avoid heat/coolness escape	0.01	0.36**	0.13**	0.00

*p<0.05, **p<0.01

The influence of environmental attitudes on inconvenient pro-environmental behaviours

A hierarchical multiple linear regression was calculated to predict *inconvenient pro-environmental behaviours* based on *environmental attitudes* controlling for *SDB* responses. As can be seen from Table 4.20, environmental attitudes significantly and positively correlated with inconvenient pro-environmental behaviours.

Table 4.20 Regression of environmental attitudes on inconvenient pro-environmental behaviours

Dependent variable	Independent variable	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	VIF
		B	SE	Beta			
Inconvenient pro-environmental behaviours (controlled for SDB)	Constant	1.56	0.14		11.44	0.00	
	SDB	0.04	0.01	0.22	6.57	0.00	1.08
	Environmental attitudes	0.25	0.04	0.23	6.89	0.00	1.08
R	0.37		**F**	62.06			
Adjusted R^2	0.13		**Sig.**	0.00			

As can be seen from Table 4.20 a significant regression equation was found (*F(2,806) = 62.06, p<.000*), with an R of 0.37 and adjusted R^2 of 0.13. The model explained 13% of the variance.

The results of hierarchical regression analysis conducted between environmental attitudes and individual inconvenient pro-environmental behaviours are presented in Table 4.21. It can be seen that environmental attitudes significantly and positively influenced five out of the six individual inconvenient pro-environmental behaviours. The influence of environmental attitudes on participating in "read nature or environmental magazines" was relatively weak (B=0.09, R^2=0.03), while the influence on participating "bought products that protect the environment" was the strongest (B=0.33, R^2=0.16).

Table 4.21 Regression of environmental attitudes on individual inconvenient pro-environmental behaviours

Inconvenient Pro-environmental Behaviours	SDB	NEP	R^2	Sig.
Recycled cans or bottles	0.15**	0.14**	0.06**	0.00
Looked for ways to reuse things	0.14**	0.19**	0.07**	0.00
Read nature or environmental magazines	0.11**	0.09*	0.03**	0.00
Re-used bags from home when going shopping	0.15**	0.23**	0.09**	0.00
Bought products that protect the environment (i.e. green products)	0.14**	0.33**	0.16**	0.00

*p<0.05, **p<0.01

The influence of environmental attitudes on nature-based activity participation

Logistic regression analysis was conducted between environmental attitudes and individual nature-based activities participation. Table 4.22 shows that environmental attitudes significantly influenced participation in four of the ten nature-based activities.

Table 4.22 Regression of environmental attitudes on individual nature-based activities participation

Nature-based activities participation	SDB	NEP	R^2	Sig.
Visiting wildlife parks, zoos or aquariums	0.02	0.47**	0.02**	0.00
Visiting botanical or other public gardens	0.03	0.39*	0.02**	0.01
Visiting natural areas	0.03	0.66**	0.03**	0.00
Taking pictures of natural scenery	0.02	1.29**	0.09**	0.00

*p<0.05, **p<0.01

The influence of nature-based activity participation on pro-environmental behaviours

In order to explore the relationship between participation in nature-based activities and pro-environmental behaviors, linear regression was conducted. As can be seen in Table 4.23, participating in 'visiting wildlife parks, zoos or aquariums' and 'taking picture of natural scenery' were significant and positive predictors of convenient pro-environmental behaviours. A significant regression equation was found ($F(11,797) = 9.84$, $p<.00$), with an R of 0.35 and adjusted R^2 of 0.11. The model explained 11% of the variance.

Table 4.23 Regression of nature-based activities participation on convenient pro-environmental behaviour

Dependent variable	Independent variable	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	VIF
		B	SE	Beta			
Convenient pro-environmental behaviours (controlled for SDB)	Constant	3.07	0.06		49.36	0.00	
	SDB	0.03	0.01	0.21	6.29	0.00	1.02
	Visiting national parks or state parks	-0.04	0.03	-0.04	-1.24	0.22	1.09
	Visiting wildlife parks, zoos or aquariums	0.07	0.03	0.07	2.02	0.04	1.16
	Visiting botanical or other public gardens	0.03	0.03	0.03	0.90	0.37	1.12
	Visiting natural museums	-0.01	0.03	-0.01	-0.29	0.78	1.11
	Walking in natural area (i.e., hiking, walking in the forest, bush walking)	-0.02	0.03	-0.02	-0.62	0.54	1.02
	Participating outdoor adventure activities (i.e., skiing, sky diving, scuba diving)	-0.02	0.03	-0.02	-0.58	0.56	1.03
	Participating natural sightseeing activities (i.e., helicopter tour, 4WD tour, Segway tour)	-0.12	0.03	-0.14	-4.09	0.00	1.03
	Watching marine animals (i.e. whales, dolphins, turtles)	0.02	0.03	0.02	0.67	0.51	1.14
	Visiting natural areas (i.e. resort, island, nature protection area)	0.00	0.04	0.00	0.02	0.99	1.12
	Taking pictures of natural scenery	0.24	0.04	0.20	5.78	0.00	1.09
R	0.35		**F**	9.84			
Adjusted R^2	0.11		**Sig.**	0.00			

Table 4.24 indicates that participating in 'visiting wildlife parks, zoos or aquariums', 'visiting natural museums', 'walking in natural area (i.e., hiking, walking in the forest, bush walking)', and 'participating outdoor adventure activities (i.e., skiing, sky diving, scuba diving)' were significant and predictors of inconvenient pro-environmental behaviours. A significant regression equation was found ($F(11,797) = 16.90, p<.00$), with an R of 0.44 and adjusted R^2 of 0.18. The model explained 18% of the variance.

Table 4.24 Regression of nature-based activities participation on inconvenient pro-environmental behaviour

Dependent variable	Independent variable	Unstandardized Coefficients		Standardised Coefficients	t	Sig.	VIF
		B	SE	Beta			
Inconvenient pro-environmental behaviours (controlled for SDB)	Constant	2.04	0.08		26.83	0.00	
	SDB	0.05	0.01	0.26	8.16	0.00	1.02
	Visiting national parks or state parks	0.04	0.04	0.04	1.05	0.29	1.09
	Visiting wildlife parks, zoos or aquariums	0.12	0.04	0.11	3.18	0.00	1.16
	Visiting botanical or other public gardens	0.07	0.04	0.07	1.95	0.05	1.12
	Visiting natural museums	0.17	0.04	0.16	4.60	0.00	1.11
	Walking in natural area (i.e., hiking, walking in the forest, bush walking)	0.12	0.03	0.12	3.57	0.00	1.02
	Participating outdoor adventure activities (i.e., skiing, sky diving, scuba diving)	0.13	0.04	0.10	3.13	0.00	1.03
	Participating natural sightseeing activities (i.e., helicopter tour, 4WD tour, Segway tour)	0.06	0.04	0.05	1.68	0.09	1.03
	Watching marine animals (i.e. whales, dolphins, turtles)	0.06	0.04	0.05	1.58	0.11	1.14
	Visiting natural areas (i.e. resort, island, nature protection area)	0.03	0.04	0.03	0.77	0.44	1.12
	Taking pictures of natural scenery	-0.03	0.05	-0.02	-0.53	0.59	1.09
R	0.44		**F**	16.90			
Adjusted R^2	0.18		**Sig.**	0.00			

4.3.3 Mediation effect of environmental attitudes

To explore the effect of Chinese cultural values on environment-related behaviours, the mediation effect of environmental attitudes was tested. Hierarchical multiple regression was conducted to test the mediation effect of environmental attitudes on values and behaviours while controlling for SDB responses. Two mediation models were tested:

1. Chinese cultural values → environmental attitudes → convenient pro-environmental behaviours; and
2. Chinese cultural values → environmental attitudes → inconvenient pro-environmental behaviours.

According to MacKinnon, Fairchild, and Fritz (2007), if the variable is having a mediation effect, it should meet the following four criteria:

1. The independent variable is significantly related to the mediating variable.
2. The independent variable is significantly related to the dependent variable.
3. The mediating variable is significantly related to the dependent variable.
4. The relationship between the independent variable and the dependent variable is reduced when the mediating variable is included.

Chinese cultural values → environmental attitudes → convenient pro-environmental behaviours

As mentioned, all four Chinese cultural value factors (i.e., self-cultivation, complacency, enjoyment and self-interest) were significant predictors of environmental attitudes. However, enjoyment was not a significant predictor of convenient pro-environmental behaviours; consequently, this item was not included in further testing. Table 4.25 shows the mediation effect of environmental attitudes on values and convenient pro-environmental behaviours

Table 4.25 Mediation effect of environmental attitudes on convenient pro-environmental behaviours

Model		Standardised Coefficients	t	Sig.	R^2
1	SDB	-0.00	-0.15	0.88	0.39
	Self-cultivation	0.56	18.98	0.00	
	Complacency	-0.08	-2.62	0.01	
	Self interest	-0.13	-4.00	0.00	
2	SDB	-0.02	-0.79	0.43	0.48
	Self-cultivation	0.37	11.80	0.00	
	Complacency	-0.01	-0.45	0.65	
	Self interest	-0.07	-2.36	0.02	
	Environmental attitudes	0.39	12.19	0.00	

Dependent variable: Convenient pro-environmental behaviours

The *beta value* of all three values decreased when environmental attitudes were added into the model. Moreover, the significance value for complacency increased from significant (p=0.01) to non-significant (p=0.65). Therefore, environmental attitudes had a full mediating effect on the relationship between complacency and convenient pro-environmental behaviours. Environmental attitudes had a partial mediating effect on the relationship between self-cultivation and convenient pro-environmental behaviours and self-interest and convenient pro-environmental behaviours..

Chinese cultural values → environmental attitudes → inconvenient pro-environmental behaviours

According to the regression analyses, all four Chinese cultural values were significant predictors of environmental attitudes. Because complacency and self-interest were not significantly regressed

with inconvenient pro-environmental behaviours, these two value items were not included in the mediation model to test the mediating effect of environmental attitudes on the relationship between values and inconvenient pro-environmental behaviours. Results of the hierarchical multiple regression are presented in Table 4.26.

Table 4.26 Mediation effect of environmental attitudes on inconvenient pro-environmental behaviours

Model		Standardised Coefficients	t	Sig.	R^2
1	SDB	0.19	5.70	0.00	0.19
	Self-cultivation	0.25	6.92	0.00	
	Enjoyment	0.16	4.69	0.00	
2	SDB	0.18	5.28	0.00	0.21
	Self-cultivation	0.16	3.74	0.00	
	Enjoyment	0.19	5.48	0.00	
	Environmental attitudes	0.15	3.89	0.00	

Dependent variable: Inconvenient pro-environmental behaviours

The *beta value* for self-cultivation decreased but the significance did not change when environmental attitudes were added into the model. Therefore, environmental attitudes had a partial mediating effect between self-cultivation and inconvenient pro-environmental behaviours. The *beta value* for enjoyment increased, thus environmental attitudes did not mediate the relationship between enjoyment and inconvenient pro-environmental behaviours.

To conclude, the mediation effect of environmental attitudes was confirmed between Chinese cultural values and convenient pro-environmental behaviours, and between some Chinese cultural values and inconvenient pro-environmental behaviours.

4.3.4 Conclusion and adjusted model

In summary, a number of significant relationships were identified following analysis of the data from the online sample. These can be summarised as follows.

The relationships among values, attitudes and behaviours have been confirmed:

Value → Attitude

- Self-cultivation **positively** influences environmental attitudes
- Complacency **negatively** influences environmental attitudes
- Enjoyment **negatively** influences environmental attitudes
- Self-interest **negatively** influences environmental attitudes

Value → Convenient pro-environmental behaviours

- Self-cultivation **positively** influences convenient pro-environmental behaviours
- Complacency **negatively** influences convenient pro-environmental behaviours
- Enjoyment **negatively** influences convenient pro-environmental behaviours
- Self-interest **negatively** influences convenient pro-environmental behaviours

Value → Inconvenient pro-environmental behaviours

- Self-cultivation **positively** influences inconvenient pro-environmental behaviours
- Complacency **positively** influences inconvenient pro-environmental behaviours
- Enjoyment **positively** influences inconvenient pro-environmental behaviours
- Self-interest **negatively** influences inconvenient pro-environmental behaviours

Value → Nature-based activities participation

- Self-cultivation **positively** influences nature-based activity participation
- Complacency **negatively** influences nature-based activity participation
- Enjoyment **positively** influences nature-based activity participation
- Self-interest **positively** influences nature-based activity participation

Attitudes → Behaviours

- Environmental attitudes **positively** influence convenient pro-environmental behaviours
- Environmental attitudes **positively** influence inconvenient pro-environmental behaviours
- Environmental attitudes **positively** influence nature-based activity participation

Nature-based activities participation → Pro-environmental behaviours

- Nature-based activities participation **positively** influence convenient pro-environmental behaviours
- Nature-based activities participation **positively** influence inconvenient pro-environmental behaviours

Environmental attitudes have been found to partially mediate the relationship between Chinese cultural values and pro-environmental behaviours (i.e., convenient and inconvenient pro-environmental behaviours).

- Environmental attitudes **partially mediate** the relationship between Chinese cultural values and convenient pro-environmental behaviours
- Environmental attitudes **partially mediate** the relationship between Chinese cultural values and inconvenient pro-environmental behaviours

These findings provide a partially support for the Value-Attitude-Behaviour model. Based on the finding of the current study, the model has been adjusted and is presented in Figure 4.2.

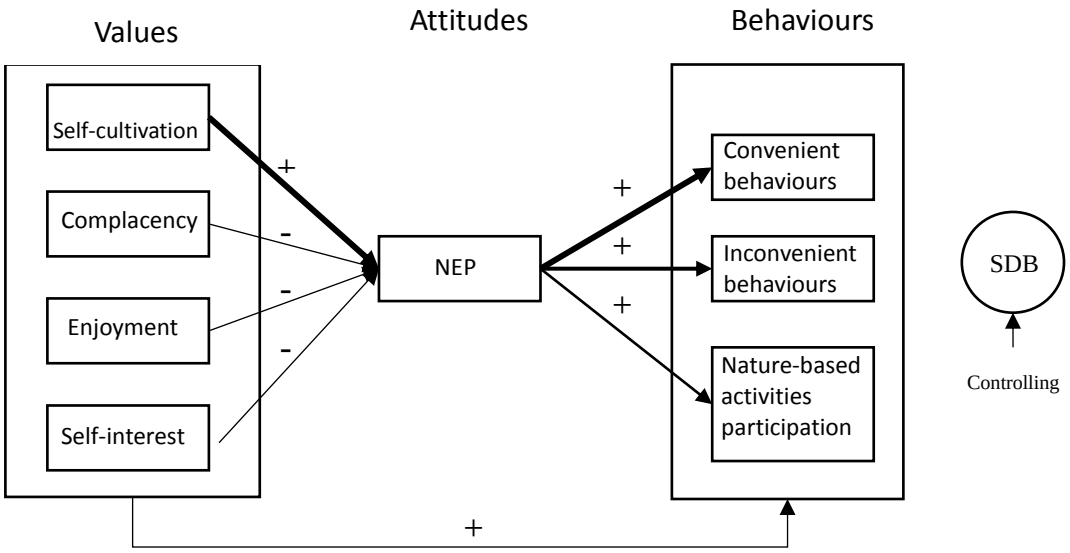

Figure 4.2 The Adjusted Values-Attitudes-Behaviours Model

As shown in Figure 4.2, self-cultivation had the strongest positive influence on environmental attitudes, while complacency, enjoyment and self-interest each had a relatively weak negative influence on environment attitudes. Environmental attitudes had a significant positive influence on all three tested behaviours (convenient pro-environmental behaviours, inconvenient pro-environmental behaviours and nature-based activity participation).

The following figures show the adjusted R^2 value of two different sub-models, which are values-attitudes-convenient pro-environmental behaviours and values-attitudes-inconvenient pro-environmental behaviours. Figure 4.3 indicates that the strongest sub-model is values-attitudes-convenient pro-environmental behaviours, whilst values-attitudes-inconvenient pro-environmental behaviours is a relatively weak model.

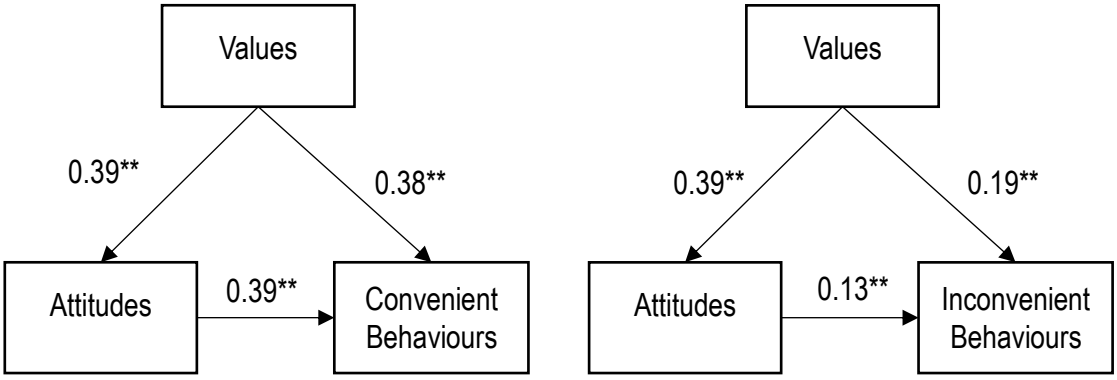

Figure 4.3 Relationship among variables

Chapter 5 Discussion and Conclusions

This chapter summarises the research findings and provides an interpretation of the outcomes. A discussion of the findings is provided in relation to the existing literature (Section 5.1), theoretical, methodological and practical contributions (Section 5.2), limitations (Section 5.3), recommendations for future research (Section 5.4) and concluding comments (Section 5.5).

5.1 Discussion

The overall objective of this thesis was to explore the relationships between Chinese cultural values and the environment-related behaviours of Chinese outbound tourists. The extraordinary growth of the Chinese outbound market (United Nations, 2015) and the need to understand Chinese tourists from a cultural perspective are widely acknowledged (e.g., Fu et al., 2015; Gao et al., 2017; Hsu & Huang, 2016). Cultural values play an important role in determining an individual's attitudes and behaviours (Ho et al., 2014), therefore to gain a better understanding of Chinese tourists' attitudes and behaviours, it is important to understand their underlying cultural values (Kwek & Lee, 2010).

Although Western cultural values and behaviours have been widely discussed, research on Chinese cultural values has been limited, particularly in relation to environmental behaviours in tourism contexts. The key aims of this thesis were to identify and evaluate a measurement instrument for Chinese cultural values and to examine the value-attitude-behaviour model in Chinese outbound tourists. The research objectives of the on-site (phase 1) and online (phase 2) studies were to test the relationships between:

- **RO1:** Chinese cultural values and the environmental attitudes of Chinese tourists
- **RO2:** Environmental attitudes and the pro-environmental behaviours of Chinese tourists
- **RO3:** Chinese Cultural Values and the pro-environmental behaviours of Chinese tourists
- **RO4:** Environmental attitudes and Chinese tourists' nature-based activity participation
- **RO5:** Chinese cultural values and Chinese tourists' nature-based activity participation
- **RO6**: Pro-environmental behaviours and Chinese tourists' nature-based activity participation

and to

- **RO7**: Explore whether environmental attitudes mediate the relationship between Chinese cultural values and environmental behaviours

The discussion of the findings in relation to the research objectives will draw from and integrate two phases of the study and both the qualitative and quantitative findings. The results from onsite and online study was very similar and remain consistent, but the discussion will be mainly focused on phase two study (i.e., online study) as it generates more significant results. This section provides a discussion of the relationship between Chinese cultural values, attitudes, and environmental behaviours (section 5.1.1), and the mediation effects of attitudes in VAB model with Chinese population (section 5.1.2). Two major findings will be discussed in relation to the research objectives. First, self-cultivation and enjoyment were important value dimensions for Chinese outbound tourists and positively influenced pro-environmental behaviours and nature-based activity participation. The discussion will explore how these values could be targeted to change environmental attitudes and behaviours. Second, an important distinction was made between convenient and inconvenient pro-environmental behaviours. Chinese visitors are more likely to participate in pro-environmental behaviours requiring little effort. This suggests that practitioners need to examine ways to reduce barriers to implementing environmentally friendly behaviours. These findings will be discussed in detail, and their alignment with current literature will be examined.

5.1.1 Chinese cultural values, environmental attitudes and behaviours

Chinese cultural values were clustered into four dimensions: self-cultivation (e.g., ‘self-discipline’), complacency (e.g., ‘non-competitiveness’), enjoyment (e.g., ‘fashion’) and self-interest (e.g., ‘fame and fortune’). ‘Self-cultivation’ and ‘enjoyment’ received higher mean scores than ‘complacency’ and ‘self-interest’ in both studies. This suggests that the Chinese outbound tourists included in the two samples have a concern about personal achievements and care for their surroundings while also emphasising enjoyment of life. It should be noted that despite receiving a lower score, ‘complacency’ and ‘self-interest’ values are still important components of the contemporary Chinese value system.

Environmental attitudes were treated as a unidimensional variable. The findings indicate that Chinese outbound tourists scored high on attitudes toward environmental issues (mean>3.5). This finding confirms previous research on Chinese visitor’s environmental attitudes (Packer et al., 2014). Pro-environmental behaviours fell into two categories; namely, convenient pro-environmental behaviours (e.g., I placed rubbish in the bins provided) and inconvenient pro-environmental behaviours (e.g., I picked up litter that was not my own). In the present study, participation in convenient behaviours is significantly higher than inconvenient behaviours. This

suggests that Chinese visitors are more likely to engage in environmentally friendly behaviours that require less effort and are easy to implement.

Influence of values on attitudes

The findings revealed that self-cultivation strongly influenced attitudes toward environmental issues. People who valued cultivation (e.g., sense of obligation, being considerate of others, self-discipline and harmony) expressed more concern about environmental issues. Self-cultivation in Chinese culture has some overlap with the Western values of self-transcendence, which refer to values reflecting concern for the welfare of others and a moral obligation to protect the environment (Schwartz, 1994). Schwartz's self-transcendence value dimension is constructed of values like 'social justice', 'equality' and 'helpfulness'. These values are concerned with the well-being of others. The self-enhancement value dimension includes values like 'successful', 'capable' and 'intelligence', which are concerned with the achievement of oneself, while the Chinese value of self-cultivation includes items that blend these Western values.

The Chinese self-cultivation value dimension includes both self-enhancement (e.g., 'self-discipline', 'working hard' and 'knowledge and education') values and values that show concern for others (e.g., 'harmony', 'sense of obligation' and 'being considerate of others'). The Chinese value dimension therefore links cultivation of the self with a concern for others. As mentioned in the above section, Chinese people who value 'harmony' tend to believe that human beings and other lives should have equal rights. Thus, it is not surprising that people who valued self-cultivation also reported more environmentally friendly attitudes. Likewise, many previous studies have confirmed the positive impact of self-transcendence values on environmental attitudes in Western contexts (e.g., Collins, Steg, & Koning, 2007; De Groot & Steg, 2007, 2008; Schultz et al., 2005).

The self-interest value dimension is concerned with power, influence and personal interest. In the Chinese value system, self-interest includes items such as 'fame and fortune', 'ostentation' and 'self-interest'. These values are concerned more with personal benefits and face. The Western equivalent of some of these values can also be found in Schwartz's power value dimension (e.g., fame and fortune). This overlap is not surprising as Schwartz's value system is a universal system which may include values held by people from different cultures. However, values such as 'ostentation' appear to be more closely associated with contemporary Chinese culture. 'Ostentation' refers to materialism, a desire for luxury and a need to impress people by flaunting wealth and acquisition (e.g., the places they visited, the food they enjoyed and the praise they gained) (Faure &

Fang, 2008). This value also includes Chinese people's face concerns. As mentioned above, face is a complex concept as it is linked with several social and personal elements, such as wealth, honour and reputation. In Chinese culture, face is linked more with materialism (Li, Zhang, & Sun, 2015) which is why this value fell into the self-interest category. "'Ostentation' has been considered a significant cultural phenomenon in modern China and acknowledged as a new social and cultural phenomenon" (Hsu & Huang, 2016, p. 240). This modern value is considered to be a by-product of rapid economic development and the increase in disposable income in modern China (Hsu & Huang, 2016). Despite some similarities between the Chinese self-interest value dimension and the Western power value dimension, there are important differences. Self-interest values refer to satisfying wants and needs and go beyond the focus on money and wealth found in Western value scales. More specifically, "colleagues, friends or relatives cannot be immune to calculating their own interests" (Hsu & Huang, 2016, p. 237).

This study identified a negative relationship between self-interest and the environmental attitudes of Chinese people in travel contexts. It is not surprising that individuals who seek personal benefits are less likely to show concern for the environment. Likewise, previous research in Western contexts confirmed the negative influence of self-enhancement values (i.e., values focusing on maximising individual benefits/outcomes) on environmental attitudes (e.g., Collins et al., 2007; De Groot & Steg, 2007, 2008).

Enjoyment values were found to negatively influence environmental attitudes in the present study. Four value items were included in the enjoyment value dimension; namely, 'indulgence', 'liberation', 'fashion' and 'leisure'. The enjoyment value dimension shares some similarities with hedonic values (i.e., 'pleasure', 'enjoying life' and 'self-indulgent') in Western culture (Schwartz, 1994). This is not surprising as the 'indulgence' value is derived from Western culture. However, values like 'fashion', 'leisure' and 'liberation' appear to be a more important part of this construct in the modern Chinese value system (Hsu & Huang, 2016). It should be noted here that these values are not dominant in traditional Chinese society but represent a more recent phenomenon in modern Chinese society. This may be attributed to the rapid economic development of Chinese society and the increasing wealth of contemporary Chinese people.

Both enjoyment values and hedonic values are concerned with enjoying one's life and pleasing oneself. Nonetheless, there are some noteworthy differences. In Western culture, hedonic values involve self-centred satisfaction and desire for affective pleasant arousal (e.g., achieving inner peace). Conversely, enjoyment values in Chinese culture are concerned not only with sensual

gratification, but also physical enjoyment (e.g., purchasing luxury goods and satisfying one's material desires). Like self-interest, people who value enjoyment are concerned more with personal goals than the surrounding environment. Thus, these people are less likely to be concerned about environmental issues. A number of Western studies indicated that hedonic values negatively influence environmental attitudes (e.g., Klöckner, 2013; Steg et al., 2014; Steg, Perlaviciute, Van der Werff, & Lurvink, 2012; Stern, 2000a; Thøgersen & Ölander, 2003). Consistent with previous findings in the Western literature, enjoyment values were found to negatively influence the environmental attitudes of Chinese respondents in the present study.

The complacency value dimension included 'complacency', 'non-competitiveness', 'compromise' and 'conformity'. This value factor was found to negatively influence environmental attitudes in the present study. There are some parallels between this value dimension and Western value dimensions. For example, items like 'conformity' are also found in Schwartz's universal value system. This is reasonable as 'conformity' is considered to be a basic human value (Schwartz, 1994). As mentioned, group conformity or group orientation is an important component of Chinese culture. To create a harmonious social environment, sometimes people need to compromise and observe social and cultural norms. Nonetheless, the Chinese complacency value dimension also includes some items that appear to be unique to Chinese culture. 'Complacency' and 'non-competitiveness' are two distinct value items in the Chinese value system. Both values refer to being satisfied with one's position in life and not willing to make an effort to make changes. These value factors reflect a gratitude for one's current situation and a desire for the easy life. Along with enjoyment values, it is not surprising that complacency values negatively influence environmental attitudes. That is because people who value complacency are seeking to minimise effort and are less likely to express environmentally-friendly attitudes. To the best of the author's knowledge, the impact of complacency on environmental attitudes has not been tested in a Western or Chinese context, consequently, the present study is the first to identify the negative influence of complacency on attitudes toward environmental issues.

Influence of values on behaviours

Along with the influence of self-cultivation on attitudes, people who value harmony, knowledge and discipline tend to report engaging in more environmentally friendly behaviours, even when travelling. This suggests that Chinese people who value cultivation and harmony are more likely to be concerned about environmental issues and also more willing to make an effort to conserve environmental resources and act in an environmentally friendly way. Although self-cultivation is a

distinctive value dimension in Chinese culture, the closely related self-transcendence value dimension found in Western research has also been linked to pro-environmental behaviours (e.g., Ballantyne et al., 2018; De Groot & Steg, 2007, 2008, 2010; Schultz et al., 2005; Steg et al., 2014; Stern, 2000a).

The positive relationship between self-cultivation and both convenient and inconvenient pro-environmental behaviour suggests that to increase Chinese visitors' participation in environmental friendly behaviours, interpretation messages or experiences should be tailored to appeal to self-cultivation values, especially to value items like 'harmony', 'knowledge' and 'sense of obligation'. To target 'harmony', destination managers could try to arouse Chinese visitors' connection with nature, animals and the surrounding environment by bringing them to the centre of the forest and asking them to listen to the birds singing. To target 'knowledge and education', practitioners could integrate different ways to deliver information about conservation and sustainable development. The 'sense of obligation' value could be targeted by encouraging visitors to think about conserving resources for future generations.

Conversely, results indicated that the self-interest value dimension was negatively and significantly related to convenient pro-environmental behaviours. These findings show that people who value self-interest place a higher priority on their own welfare, and therefore may be less interested or willing to act in a more environmentally friendly way. The most frequently mentioned reason tourists at Tangalooma gave for not participating in conservation behaviour was "my self-interest is the first priority". Similar findings are also reported regarding the influence of Western egoistic values on pro-environmental behaviours (e.g., Ballantyne et al., 2018; Honkanen & Verplanken, 2004; Nordlund & Garvill, 2002), suggesting that tourists holding these values are likely to be resistant to efforts to engage them in conservation initiatives.

Despite the negative impact of this value dimension on behaviours, some value items (e.g., ostentation/face and self-interest) could be targeted to increase pro-environmental behaviour. For instance, to target 'ostentation/face' value, practitioners could make use of reward mechanisms to stimulate more environmentally friendly behaviours in Chinese visitors and encourage them to share these rewards on social media platforms to impress friends and family. More detailed suggestions for designing values-expressive strategies to engage different values groups will be discussed in section 5.2.3.

Complacency was another significant predictor of convenient pro-environmental behaviours. Consistent with the influence of complacency on environmental attitudes, this value dimension had a negative influence in predicting convenient pro-environmental behaviours. It is proposed that people who score highly on the complacency value dimension are satisfied with their current situation and not willing to make changes, or just simply follow others' behaviour. As a result, it is not surprising that they are not willing to act to conserve resources. Qualitative data indicated that visitors did not participate in energy-saving and waste management behaviours because they thought "it is troublesome". The influence of complacency on environmental behaviours has been neglected in previous studies. This may be because this value dimension is more evident in Chinese culture.

To target those with dominant 'complacency' values, practitioners could try to reduce pro-environmental action barriers and provide convenience. For example, destination managers should put rubbish bins and recycle bins in the most visible place everywhere so the visitors can easily find the bins. As mentioned before, 'conformity' is another component of the complacency value dimension and plays a significant role in determining Chinese visitor's behaviours. Thus, 'conformity' could be targeted by encouraging visitors to follow the positive environmental behaviours of other group members and tourists.

Enjoyment was a significant predictor of inconvenient pro-environmental behaviours in the present study. People who value enjoyment are likely to desire a high-quality life and to follow fashion trends. In modern China, purchasing green products, reading nature magazines and reusing objects are not only environmentally friendly behaviours, but also represent a fashion trend that symbolises an upscale lifestyle. Therefore, it is reasonable that people who value enjoyment are more likely to participate in inconvenient pro-environmental behaviours. As stated earlier, the enjoyment value dimension shares some similarities with the hedonic value in Western culture. Interestingly though, previous research found that hedonic value was mostly negatively related to conservation or pro-environmental behaviours (e.g., Steg et al., 2012). The findings in this study appear to contradict previous studies in Western contexts. One possible reason is that the Chinese enjoyment value dimension is slightly different to the Western dimension of hedonism as mentioned in previous sections. Also, the pro-environmental behaviours in the present study were clustered into two types of behaviours (i.e., convenient and inconvenient behaviours), whilst previous research takes all pro-environmental behaviours as a whole. This distinction highlights that future studies should not treat all pro-environmental behaviours in the same category. In this study, respondents were asked to

report behaviours during their holiday, while most previous research focussed on home or work contexts. It is suggested that tourists behave differently when at home or in the workplace, especially when examining pro-environmental behaviours (e.g., Dolnicar & Leisch, 2008; Untaru et al., 2014).

Thus, to increase Chinese visitors' pro-environmental behaviour participation, value items that make up the enjoyment value dimension, such as 'fashion', could be targeted. As stated above, higher-level pro-environmental behaviours are seen as a kind of upscale lifestyle for Chinese people. Thus, destination managers should highlight the link between pro-environmental behaviours and upscale lifestyle (fashion trend). This could lead Chinese visitors to participate in more environmentally friendly behaviours while travelling.

Despite an extensive literature search, it appears that the relationships between cultural values and nature-based activity participation have not been previously researched, in Western or Chinese contexts. In the present study, 'self-cultivation' was found to significantly and positively influence traveller's nature-based activities participation. Both onsite and online study suggests that Chinese people who value self-cultivation (e.g., harmony) are more likely to engage in nature-based activities while travelling as they value self-improvement and are willing to develop themselves by participating in outdoor activities and integrating with nature. In contrast, complacency values were significantly and negatively associated with nature-based activity participation. Perhaps people with strong complacency values are satisfied with their current life status and are not willing to make sacrifices to change their current behaviours.

Influence of attitudes on behaviours

Environmental attitudes were found to significantly and positively influence convenient pro-environmental behaviours, inconvenient pro-environmental behaviours and nature-based activity participation. Among all three types of behaviour, the influence of environmental attitudes on convenient pro-environmental behaviours was strongest, whereas the influence of attitudes on nature-based activity participation was the weakest. Although the significant influence of attitudes on behavioural intention has been confirmed by other authors (e.g., Han, 2015; Hedlund, 2011), most previous tourism studies have failed to confirm the influence of attitudes on actual behaviours (e.g., Becken, 2004; Bergin-Seers & Mair, 2009; Juvan & Dolnicar, 2014a).

In online study, the influence of environmental attitudes on pro-environmental behaviours that required little effort or convenience (e.g., conserving energy) was stronger than behaviours that

required greater effort or some inconvenience (e.g., picking up someone else's litter). Differentiating between convenient and inconvenient behaviours in this study provided further insight into the relationship between environmental attitudes and pro-environmental behaviours in tourism contexts. These findings indicate that the likelihood of engaging in pro-environmental behaviours may increase when they are easy to implement. This was confirmed by the results from the online study (i.e., respondents engaged in convenient behaviours more often than inconvenient behaviours). This finding provides useful insights for practitioners who wish to reduce barriers to participating in environmentally friendly behaviours. The detailed implication will be discussed in section 5.2.3.

In addition to the significant impact of environmental attitudes on pro-environmental behaviours, nature-based activity participation was also found to be significantly and positively influenced by attitudes toward the environment. There have been numerous investigations of the relationship between environmental attitudes and outdoor/nature activity participation (Barker & Dawson, 2012; Bjerke & Kleiven, 2006; Jackson, 1986; Teisl & O'Brien, 2003), but the present study was one of the first to explore these relationships in Chinese outbound tourists. Positive attitudes toward environmental issues positively influenced participation in nature-based activities in tourism contexts. These findings are significant for the future development of sustainable tourism and nature-based tourism as they suggest that operators need to consider how they can engender positive attitudes in Chinese tourists prior to arrival or at the destination. For example, displaying environmental messages on inbound flights or at the airport may encourage positive attitudes toward the environment. These positive attitudes may encourage outdoor or nature-based activity participation, which would further promote more positive attitudes toward the environment.

Influence of nature-based activity participation on pro-environmental behaviours

Participating in nature-based activities (e.g., visiting wildlife parks, zoos or aquariums) positively and significantly influence participation in pro-environmental behaviours. This finding suggest that tourists who are willing to engage in nature-based activities are more likely to take efforts to protect the environment. Theoretical and empirical support for the relationship between ecological behaviours and nature-based activity participation is widespread in the literature (e.g., Larson et al., 2011; Lee & Jan, 2015; Thapa et al., 2005). These findings also suggested that individuals who have more opportunities to experience, enjoy, learn and be involved in nature-based outdoor activities are more likely to engage in activities that benefit the natural environment, such as picking up litter.

Particularly, the results of the present study suggests that participating in wild animal encounter activities could enhance both convenient and inconvenient environmentally friendly behaviours.

Previous research only investigated the relationship between nature-based activity participation and pro-environmental behaviours in general, while ignoring the level of effort required to implement pro-environmental behaviours (e.g., Larson et al., 2011). This study showed that participating in nature-based activities not only promote convenient or basic pro-environmental behaviours but also enhance the engagement of pro-environmental behaviours that require more efforts.

To summarise, self-cultivation plays a significant role in determining convenient and inconvenient pro-environmental behaviours. The self-interest and complacency value dimensions are negatively and significantly associated with convenient pro-environmental behaviours, but not inconvenient ones. The enjoyment value dimension positively influenced inconvenient pro-environmental behaviours. Although sharing some similarities with Western value items, these Chinese value dimensions include value items that are more representative of Chinese culture (e.g., ostentation, complacency, and fashion). Thus, these values should be considered when delivering marketing messages and activities for Chinese visitors.

5.1.2 Mediating effects of Environmental Attitudes

This research tested Homer and Kahle's (1988) value-attitude-behaviour cognitive hierarchical model. Previous research has tested this model in Western contexts using Western value systems (e.g., Milfont et al., 2010; Vaske & Donnelly, 1999). The findings of this study support the robustness and generalisability of the model in a Chinese population while taking Chinese cultural values into consideration. The validity of the model has been confirmed in the present study. Findings confirmed the mediating role of attitudes on the influence of values on behaviours, although the mediating role was partial. One reason for finding only a partial mediating effect of attitudes is that there might be other mediators existing in a holiday context, such as social norms and place attachment. Previously, the value-attitude-behaviour model was well developed and widely used in the environmental psychology research field and in a daily life context. Other mediators may exist in tourism contexts. It would be worthwhile if future studies could identify these.

The present research also went beyond previous studies and extended the model by adding one more environmentally relevant behaviour—nature-based activity participation. The expanded model

emanated from a number of studies showing the association between environmental attitudes and outdoor recreation participation (e.g., Barker & Dawson, 2012; Bjerke & Kleiven, 2006; Jackson, 1986). The expanded model provide a better insight for understanding relationship between values, attitudes, and behaviours from environmentally sustainable point of view.

5.2 Contributions and implications

The present research was designed to fill important gaps within the current literature and aimed to improve the understanding of how cultural values influence Chinese tourists' environmental attitudes and ecological behaviours in travel contexts. This study has made several theoretical, methodological and practical contributions to the areas of tourist behaviour and environmental psychology.

5.2.1 Theoretical contributions

The combined results of the pilot study and two studies included in this thesis make several theoretical contributions. Firstly, the study examined an integrated model based on Value-Attitude-Behaviour theory with a Chinese population. This model contributes to an understanding of how Chinese cultural values influence environmental attitudes, which in turn influence behavioural outcomes (i.e., pro-environmental behaviours and nature-based activity participation). Although the VAB theory has been widely tested in Western contexts using Western cultural values, it has not been applied to populations with different cultural value systems. The development of Chinese outbound tourism and an increase in the number of outbound tourists coming from China means that understanding the impact of cultural variables on Chinese tourists' behaviours has become even more important. This research contributes an understanding of Chinese outbound tourists' pro-environmental behaviours and participation in nature-based recreation – an area which has received very little attention in previous research (Packer et al., 2014). The implication for tourism researchers is that if we want to understand Chinese tourists' behaviours, explore the underlying values and attitudes are important.

Secondly, this research contributes to the environmental psychology literature by extending the many studies conducted on pro-environmental behaviours in home and work settings to a travel context. Although the VAB theory has been used widely in environmental psychology in everyday contexts (e.g., Milfont et al., 2010; Paço, Alves, & Shiel, 2013; Vaske & Donnelly, 1999), it has not been used in a tourism context to examine the direct or indirect relationship between tourists' values and environmental behaviours. The examination of the value-attitude-behaviour model in a tourism

context makes a robust and novel theoretical contribution. It is important to understand the influence of values on visitors' attitudes and behaviours in tourism settings as people often behave differently when in travel mode compared with their everyday routine (e.g., Donicar & Leisch, 2008; Untaru, Epuran & Ispas, 2014). Overall, the present study confirms the value-environmental attitude-behaviour hierarchical relationship in tourism contexts with Chinese populations who espouse unique Chinese cultural values. The implication of this contribution is that values and attitudes are not only predictors of pro-environmental behaviours at home with Western population, but also are significant predictors of the environmental behaviours of Chinese tourists in travel condition.

Thirdly, the present study makes a significant theoretical contribution by extending the VAB model. Nature-based activity participation or outdoor recreation participation has been added to the model as a new dependent variable. Rather than measuring the intended behaviours, the present study measured actual behaviours of the participants. Most previous studies focused on ecological behaviours when testing the value-attitude-behaviour model (e.g., Milfont et al., 2010; Vaske & Donnelly, 1999). These studies have ignored the importance of participation in outdoor or nature-based activities, which have been confirmed to be significantly associated with environmental attitudes (e.g., Barker & Dawson, 2012; Bjerke & Kleiven, 2006). In the environmentally sustainable tourism context, participation is a vital part of the tourism experience as it increases tourists' appreciation of nature, which in turn encourages them to undertake more appropriate environmentally friendly actions (e.g., Cheung, Lo, & Fok, 2017; Hughes, 2013; Larson et al., 2011; Lee & Jan, 2015; Thapa et al., 2005). Consequently, the inclusion of nature-based activities in the present study addresses a shortcoming in the existing value-attitude-behaviour model and completes this model, thus making it more suitable for use in the tourism research context. For tourism researchers, the implication of this contribution is that nature-based activities participation should be taken into consideration in the future research if we want to understand tourists' environmental behaviours more comprehensively.

In summary, this research suggested that the VAB model is theoretically valid with a Chinese population in tourism contexts. The key theoretical contributions are as follows:

1. applying and testing the VAB model to measure the behaviours of Chinese outbound travellers and showing that the VAB model is suitable for measuring Chinese visitors values in a sustainable tourism context;

2. highlighting the role of cultural values in predicting environmental attitudes and ecological behaviours in travel;
3. differentiating between convenient and inconvenient pro-environmental behaviours; and
4. demonstrating that nature-based activity participation should be considered when testing value-attitude-behaviour theory.

5.2.2 Methodological contributions

Apart from these theoretical contributions, the measurement and testing of Chinese cultural value scales also has implications for the wider tourism literature. There are a number of widely used value scales, such as Rokeach's Value Survey (Rokeach, 1973), List of Values (Kahle et al., 1986), Hofstede's cultural values (Hofstede, 1984) and Schwartz's Value Theory (Schwartz, 1994); however, all these value scales were developed by Western scholars based on Western value systems.

A major contribution of this study is that it statistically evaluates the reliability and construct validity of four existing value scales developed by previous scholars. Although some scholars have tried to develop Chinese cultural value scales (Chinese Culture Connection, 1987; Hsu & Huang, 2016; Yau, 1988; Zhang, 2005a), some of these values scales have not been statistically tested to assess the validity of the constructs proposed by the original authors (e.g., Zhang's value framework, Yau's value frameworks, and Hsu & Huang's value framework). This research makes a methodological contribution by testing and identifying the most valid and reliable Chinese value scale for use in tourism contexts.

Exploratory factor analysis was conducted on the distinct Chinese cultural values scales. The underlying value dimensions of each scale were identified with a high degree of reliability. In many cases the constructs were different to those proposed by the original authors, but they had good internal reliability, and made sense thematically. Comparing with the original constructs, dimensions generated in the present study are more comprehensive and rationale. More sub-scales were identified and higher internal consistency of the factors were found as well.

More importantly, several value items were confirmed across multiple scales and samples; including, *self-cultivation*, *harmony (with nature or others)/group-orientation*, and *face*. These value dimensions appear to be central to the value systems of Chinese people and differ from Western value systems. These highlighting that some values are more representative of Chinese

culture. This finding represents an important methodological contribution to existing value research, which has largely focused upon Western value systems, rather than attempting to measure the unique cultural values of Chinese people. The validation of Chinese cultural values is therefore a substantial contribution to values research because it recognises the unique characteristics of Chinese cultural values and reliably identifies different dimensions of Chinese cultural value scales. By doing so, the Chinese cultural value dimensions proposed here extends the traditional measurement of cultural values.

Not only did the present research test four Chinese cultural value scales, it also identified the most valid and robust scale for use in tourism contexts (e.g., Hsu and Huang's value scale). Based on internal consistency, comprehensiveness and the fact that Hsu and Huang's scale was developed in the tourism context, their scale was selected for the two subsequent studies. The value dimensions across all three samples of Chinese respondents were reasonably stable. Factor analysis of responses obtained in phase 1 and phase 2 largely confirmed the same factors identified in the pilot study (e.g., self-cultivation, complacency, enjoyment and self-interest) (Appendix 19). The sample in phase 2 was the largest and most diverse and statistics showed good internal reliability. This highlights the replicability of the scale selected across three different samples and research settings (e.g., pilot study, onsite study and online study).

In summary, the key methodological contribution is the testing, identification and confirmation of a valid and robust multi-dimensional scale for measuring Chinese values. The implication for tourism researchers is that they could use this validated value scale to measure Chinese-specific cultural values rather than relying on cultural values measures developed in Western contexts.

5.2.3 Practical implications

The results of this research provide valuable practical insights for those responsible for tourism management and sustainable development. The key implications are that if we want the growing numbers of Chinese outbound tourists to engage in environmentally-responsible behaviours, we need to understand and take into account the values held by Chinese visitors and how these influence their attitudes and behaviour. In particular, we need to consider how to appeal to tourists who may prioritise different values to other market segments. The managerial implications of this research extend to destination managers (e.g., on-site managers) and marketing practitioners (e.g., advertising managers). For example, understanding the values and environmental attitudes of Chinese outbound tourists can help marketing practitioners 'tap into' Chinese tourists' perceived

connections with environment and nature. Thus, destination marketing strategies and promotional materials could be designed to appeal to specific values and attitudes. Likewise, onsite interpretation designed to educate and change behaviour could be tailored to target the core values of different segments of Chinese visitors.

From an environmental protection perspective, the findings of this study provide insights into the types of information, experiences and messages that could be used by interpreters and destination managers to help connect and engage Chinese tourists with environmental and conservation issues. This is important as China has become the world's leading outbound tourism market and will continue to be a growth market for many destinations (United Nations World Tourism Organization, 2017). For example, self-cultivation (e.g., knowledge, self-discipline, harmony and obligation) was found to positively influence the environmental attitudes and pro-environmental behaviours of respondents. Managerial strategies could be tailored specifically to appeal to Chinese visitors' cultural values to help these tourists overcome obstacles and encourage more environmentally sustainable behaviours.

The qualitative results in the onsite study also revealed that some Chinese visitors did not engage in environmentally friendly behaviours because they lacked awareness (e.g., saving energy) or information (e.g., recycling), or because of a lack of infrastructure onsite (e.g., recycling bins). These results suggest that interpretive messages highlighting the *connection between human and natural environment* and *human's obligation to protect the environment* could be linked with the delivery of *environmental protection information* to appeal to specific values that can influence attitudes towards environmental issues. Engendering positive attitudes amongst Chinese tourists may in turn promote more ecologically-friendly behaviours. Operationally, destination managers should improve the visibility and availability of equipment and infrastructure (e.g., recycling bins) to reduce the barriers that may prevent Chinese visitors from participating in environmentally responsible behaviours while travelling.

From a nature-based activity participation perspective, the findings of Chinese tourists' participation in nature-based activities and their attitudes toward nature and environment offer valuable guidance for advertising and destination promotion. On one hand, the present research revealed that the self-cultivation value (e.g., knowledge, self-discipline, harmony and obligation) and enjoyment value (e.g., leisure and liberation) positively and significantly impacted on Chinese visitors' nature-based activity participation. Thus, elements such as human-nature harmony, nature admiration and nature-

related knowledge (e.g., how to protect natural resources) could be highlighted in advertising and other information provided to travellers.

Values were commonly grouped into factors and analysed as value dimensions rather than individual items. Thus, the present research was concerned only with value dimensions rather than individual values. Although only certain value dimensions had a significant and positive influence pro-environmental behaviours, some individual value items in each dimension warrant further comment given that these items loaded strongly against their respective factors. For instance, self-discipline, harmony, sense of obligation, and knowledge and education had high factor loadings (>0.65) for the self-cultivation value dimension across both phases of data collection. Fashion had a high loading against the enjoyment value dimension. The complacency and self-interest value dimensions were found to negatively influence environmentally friendly behaviours. Complacency and conformity loaded strongly on the complacency value dimension (>0.65) across both phases of data collection. For self-interest value dimension, self-interest and ostentation had high factor loadings (>0.70). Thus, these high loaded value items should be emphasis in managerial strategies to promote environmental friendly behaviours.

Table 5.1 provides some examples of different ways in which these values could be targeted using messages and experiences designed specifically for Chinese visitors. As shown, *sense of obligation, harmony, knowledge and education, fashion, ostentation, self-interest, complacency, and conformity* were key value items which could be targeted by destination managers to promote positive environmental behaviours.

The table proposes a more diverse range of strategies for encouraging environmentally friendly behaviours by targeting Chinese cultural values. For instance, making use of reward mechanisms to tailor ostentation, strengthening the link between pro-environmental behaviours and upscale lifestyle to target fashion values, and encouraging visitors to conform with positive environmental behaviours to appeal to conformity values. Adding these strategies into current conservation management practices may promote more environmentally friendly behaviours amongst Chinese visitors. To promote Chinese outbound tourists' pro-environmental behaviours, current experiences should be redesigned and focused on the Chinese cultural values identified in the table.

Table 5.1 Suggested strategies for targeting Chinese cultural values

Chinese values	Managerial strategies	Examples
Self-cultivation		
Sense of obligation	Encourage visitors to think bigger and longer and to conserve resources for the next generation.	• Explain the importance of sustainable development and impacts on others if we do not start acting to protect the environment. • Explain that protecting the environment is not only for their own benefit but also for society and other living things.
Harmony	Arouse visitors' connection with nature, animals and surrounding environment.	• Take visitors to a natural site and ask them to listen to the birds singing. • Provide more animal watching and feeding activities.
Knowledge and education	Integrate different ways to deliver knowledge regarding conservation and sustainable development.	• Provide a mini course for visitors (e.g. 15 minutes) including conservation knowledge and current environmental issues. • Prominently display conservation information and tips in English and Chinese (e.g. in hotel rooms, on signage at tourist sites).
Enjoyment		
Fashion	Strengthen the link between pro-environmental behaviours and upscale lifestyle (fashion trend).	• Collaborate with high-end brands to promote recycled toilet paper, reusable bags, reusable chopsticks, etc. • Engage celebrities in the delivery of conservation messages and programs.
Self-interest		
Ostentation/face	Make use of reward mechanisms	• Encourage visitors to participate in pro-environmental behaviours and to share these on social media (e.g., Instagram, WeChat). Participants can be entered into a draw where the winner will be rewarded with a certificate or a gift voucher. • Nominate an eco-ambassador from visitors who participated in environmentally friendly behaviours and invite them to participate in a short video which can be shared online.
Self-interest	Consider the welfare of visitors.	• Inform visitors of the most comfortable air conditioning temperature to avoid sickness and save energy. • Adjust green product pricing so visitors do not feel that they are spending more on ecofriendly products.
Complacency		
Complacency	Reduce barriers and provide convenience.	• Put rubbish bins and recycle bins in the most visible place so visitors can easily find them. • Provide reusable bags so visitors do not need to find a new bag.
Conformity	Encourage visitors to conform with the positive environmental behaviours of their group members (e.g., fellow travellers).	• Strengthen the concept of 'group-orientation' by organising some group environmental protection activities. • Arrange small-group sessions and ask participants to share their environmentally friendly initiatives to encourage others to conform the same behaviours.

The qualitative results in the onsite study identified internal and external reasons for not participating in nature-based activities. External barriers included expensive ticket prices, the perceived risks of certain activities, crowding, lack of advertising and complicated booking processes. Internal barriers included a lack of interest and motivation and previous participation in certain activities. These findings suggest interpretive messages should emphasise the *connection between humans and nature, liberation and relaxation in nature and enjoying the connection with*

nature. Additionally, nature-based experience design which targets Chinese visitors could focus on less risky and softer nature-based activities, such as bush walking, animal watching and guided tours. Furthermore, the design of nature-based experiences could be more innovative because Chinese visitors are seeking unique nature-based activities that they cannot experience elsewhere. Operationally, pricing strategies need to be reconsidered and booking processes should be simplified to encourage more participation in nature-based activities.

5.3 Limitations of the study

Like other studies, this research is not free from limitations, both methodological and theoretical. This section details weakness pertaining to the overall thesis. Recommendations for further research corresponding to the limitations of this present research are provided.

First, the present research examined environmentally sustainable behaviours in a tourism context. As indicated by previous research, environmentally responsible behaviours may vary from one context to another (Dolnicar, 2010; Dolnicar & Grün, 2009; Thøgersen & Ölander, 2003; Untaru et al., 2014). This research has been confined to environmental behaviours and the value-attitude-behaviour hierarchical relationship was limited to Chinese outbound tourists. Therefore, the findings cannot be generalised beyond this context. Caution should be applied and further investigation undertaken before assuming that the conceptual framework used in this research could be applied to other contexts. For example, Chinese domestic tourists may respond differently to those who are in an outbound travel context in terms of pro-environmental behaviours and outdoor recreation participation. Hence, the impact of values and attitudes on environmental behaviours might differ according to the destination. Future studies could test the value-attitude-behaviour model further with Chinese tourists in different travel contexts.

Second, only values and attitudes were tested as antecedents of environmental behaviours, as suggested by Homer and Kahle's (1988) study. Previous research has indicated that behaviours toward the environment are complex (McDonald, Oates, Alevizou, Young, & Hwang, 2012). Thus, any assessment of the influence of values and attitudes on environmental behaviours is limited. The results of the analysis also indicate that the predictive strength of relationships between many of the variables was weak. This suggests that the model can be improved by including other variables. Accordingly, other socio-psychological characteristics could be taken into consideration, such as social norms and motives. Some external destination related factors could also be tested, like accessibility of green facilities. Future research should assess relationship between values, attitudes,

environmental beliefs, social norms and destination related factors in terms of predicting environmentally friendly behaviours and participation in outdoor recreation, especially in tourism research contexts.

Third, the value scale examined in the present research focused on the general Chinese population, while ignoring the differences between ethnic groups within China. It would be worthwhile to explore whether there are differences in Chinese cultural values within China as China is made up of fifty-six ethnic groups and each ethnic group may exhibit a unique pattern of cultural values under the general Chinese cultural value system. The cross-ethnic validity and reliability of the scales has not been examined. Thus, to generalise the Chinese cultural value scales across different ethnic groups, future research could test and cluster the scales with people who have different ethnical backgrounds. Similarly, respondents in the present study were quite young. The values that these younger travellers hold may be very different to those older travelling tourists. Therefore, it is necessary for future research to test the scales with different age groups to increase generalisation.

Fourth, the present study was limited to examining whether values and environmental attitudes (NEP) (i.e., attitudes toward environmental issues) could predict the pro-environmental behaviours (e.g., energy conservation, green purchasing and recycling) of Chinese tourists. The linkage between behaviour-based attitudes and environmental behaviours is not clear. Consequently, future research should test the VAB model from a behaviour-specific perspective. As an example, future studies could examine the relationship between Chinese cultural values and attitudes toward green hotels, attitudes toward water shortage and water conservation behaviours, and attitudes toward animals and wildlife and wildlife conservation behaviour. Some researchers have found that attitudes toward the environment influenced participation in nature-based activities (e.g., Barker & Dawson, 2012), whilst others have found that outdoor activity participation promoted positive environmental attitudes (e.g., Asah, Bengston & Westphal, 2012). Therefore, future research could explore further whether a causal relationship exists between environmental attitudes and outdoor/nature-based activity participation and the nature of any such relationship.

Fifth, in phase 2, all tourists who had travelled abroad were included in the online survey. Thus, the destination countries that were visited varied in terms of the availability of infrastructure and activities available. Future research could focus on a single destination country (e.g., Australia) or a single type of setting (e.g., nature-based destinations: Australia, South Africa and New Zealand). By doing so, an onsite data collection method could be used, although the results from the Tangalooma Island study highlight that selecting a single site may be problematic if the sample is likely to be

homogeneous. To minimise these risks, some recommendations are provided: 1) selecting multiple sites (e.g., more than three) in one destination country; 2) collecting data at the airport in the destination country (could reach tourists who have visited diverse sites in the destination country); and 3) collecting data online but focusing on certain destination countries that meet the criteria (e.g., nature-based destinations: Australia, the U.S. and South Africa).

Sixth, the use of online survey panels may introduce a self-selection bias in the research findings. The samples are not representative of the population since they only survey people who can access the internet and who have the time and inclination to complete the survey (Thompson, Surface, Martin, & Sanders, 2003). These participants are likely to be young and may not represent the majority of 'typical' Chinese tourists. There is also a tendency of some respondents misrepresent their age, gender, and level of education in an online survey (Wright, 2005). To manage this issue, future research should involve a diverse sample in terms of gender, age, ethnic groups, occupation and location. To achieve this goal, onsite data collection at multiple regions, provinces and cities should be conducted.

5.4 Suggestions for further research

The findings and limitations lead to the following research opportunities: a) validate the Chinese cultural value scale with a larger population; b) test the VAB model with Chinese cultural values in other tourism research contexts; c) conduct a longitudinal study that tracks changes in Chinese cultural values over the next decade; d) categorise Chinese tourists by their cultural values and e) use the research method in the present study to test other cultural values with other populations.

The validation of the Chinese cultural value scale in the present study could be used as a valuable foundation for further development and testing of a comprehensive Chinese cultural value scale. Further research is needed to test the scale with a larger population to further validate the scale. This would require a large sample size. Additionally, respondents should represent diverse age groups, occupations, education levels, ethnics and home cities.

There is enormous potential to test the VAB model with Chinese cultural values in other tourism research contexts (e.g., cruise tourism and hospitality). The present study provides a solid foundation for future researchers to test the model with Chinese populations in different tourism research contexts; such as, hospitality, shopping and transport use. Given the significant influence of cultural values on attitudes and behaviours of Chinese tourists, exploring the impact of values on

a variety of Chinese tourists' behaviours is essential. For instance, exploring the underlying values of Chinese tourists' hotel selection behaviours could help hotel managers promote their service and provide a better experience for their Chinese customers.

In addition to extending the understanding of Chinese cultural values, longitudinal research should be conducted to monitor the changing of Chinese cultural values over time. As suggested by Cao (2009), cultural values do change slowly over time with economic developments, education and mass media influence of younger generations. It is expected that Chinese cultural values will change over the next decade. Accordingly, it would be interesting to assess how Chinese cultural values are changing and the influence of these values on attitudes and behaviours over time.

The Chinese cultural value scale selected in the present research could be used for any future study to categorise Chinese outbound tourists. With the gradual fusion of Western culture with Chinese culture, younger tourists may hold different values from older generations. Thus, it would be worthwhile for researchers and destination practitioners to cluster their Chinese visitors using not only demographic characteristics, but also their value orientations.

Given that the target sample of present research were Chinese tourists, only cultural values concerning Chinese people were tested. With the development of international outbound tourism, many other countries are becoming mainstream outbound tourism source markets. According to the United Nations World Tourism Organization (2017), emerging economics in the Middle East have shown fast growth in outbound travel. Thus, future research may need to focus on the cultural values of tourists from the Middle East, for example, as well as the impact of their values on their travel behaviours.

5.5 Conclusions

With the rapid growth of the Chinese outbound tourism market, the impact of a huge number of Chinese outbound tourists' behaviours on destination countries cannot be ignored. Their behaviours are likely to significantly influence the environmental impacts of tourism on destinations and may make environmentally sustainable initiatives difficult to implement and manage. Accordingly, understanding the travel behaviours and underlying values and attitudes of Chinese travellers has become an urgent issue. This research helps researchers and destination managers to better understand Chinese outbound tourists from a cultural value perspective. Despite sharing some similarities with Western culture, the Chinese value system encompasses some unique value items

that only exist in Chinese culture. The findings of the present research could help practitioners to design messages and experiences which are tailored to appeal to Chinese cultural values. It is suggested that practitioners design different messages and interpretation for Chinese visitors. This, in turn, could promote positive environmental attitudes and encourage more environment-friendly behaviours.

This thesis has addressed a gap in the sustainable tourism and environmental psychology literature relating to Chinese outbound tourists and their behaviours. It proposes a potentially valuable tool for measuring Chinese cultural values in the tourism context. Four Chinese cultural value dimensions, namely self-cultivation, enjoyment, complacency and self-interest have been identified and their reliability and validity have been confirmed. The value-attitude-behaviour model has been tested with Chinese respondents and proven to be valid in predicting some environmentally relevant behaviours. It can therefore be concluded that unique Chinese cultural values play an important role in shaping Chinese people's attitudes toward nature and environment and that these values impact on their environmentally sustainable behaviours while travelling.

The promotion of Chinese outbound tourists' positive environmental attitudes, encouragement to behave in a more environmentally sustainable manner and involvement in more nature-based activities when travelling are important as the environmental friendly behaviours contribute not only to destination societies but also to the natural world. This research provides evidence that, in the case of outbound tourism, Chinese cultural values play an important role in determining Chinese visitors' attitudes toward environmental issues, which in turn are significantly associated with their ecological behaviours. Additionally, engagement of nature-based activities was significantly influence participation in more demanding environmentally responsible behaviours.

References

Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*: Springer.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50*(2), 179-211.

Ajzen, I., & Driver, B. L. (1991). Prediction of leisure participation from behavioral, normative, and control beliefs: An application of the theory of planned behavior. *Leisure Sciences, 13*(3), 185-204.

Ajzen, I., & Driver, B. L. (1992). Application of the theory of planned behavior to leisure choice. *Journal of leisure research, 24*(3), 207.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of experimental social psychology, 22*(5), 453-474.

Albarracín, D., Zanna, M. P., Johnson, B. T., & Kumkale, G. T. (2005). Attitudes: Introduction and Scope.

Allen, M. W., Hung Ng, S., & Wilson, M. (2002). A functional approach to instrumental and terminal values and the value-attitude-behaviour system of consumer choice. *European journal of Marketing, 36*(1/2), 111-135.

Amante-Helweg, V. (1996). Ecotourists' beliefs and knowledge about dolphins and the development of cetacean ecotourism. *Aquatic Mammals, 22*(2), 131-140.

Andersson, L., Shivarajan, S., & Blau, G. (2005). Enacting ecological sustainability in the MNC: A test of an adapted value-belief-norm framework. *Journal of Business Ethics, 59*(3), 295-305.

Andreu, R., Claver, E., & Quer, D. (2014). Destination Attributes and Chinese Outbound Tourism to Europe 目的地特性和中国对欧洲的对外旅游. *Journal of China Tourism Research, 10*(3), 275-291.

Araujo-Soares, V., Rodrigues, A., Presseau, J., & Sniehotta, F. (2013). Adolescent sunscreen use in springtime: a prospective predictive study informed by a belief elicitation investigation. *Journal of behavioral Medicine, 36*(2), 109-123.

Arlt, W. (2006). *China's outbound tourism*: Routledge.

Asah, S. T., Bengston, D. N., & Westphal, L. M. (2012). The Influence of Childhood Operational Pathways to Adulthood Participation in Nature-Based Activities. *Environment and behavior, 44*(4), 545-569.

Australia Zoo. (2018). Discover a new way of learning. from http://www.australiazoo.com.au/conservation/

Babbie, E. R. (2010). *The practice of social research* (Vol. 12th). Belmont, Calif: Wadsworth Cengage.

Bagstad, K. J., & Wiederholt, R. (2013). Tourism Values for Mexican Free-Tailed Bat Viewing. *Human Dimensions of Wildlife, 18*(4), 307-311.

Ballantyne, R., Hughes, K., Lee, J., Packer, J., & Sneddon, J. (2018). Visitors' values and environmental learning outcomes at wildlife attractions: Implications for interpretive practice. *Tourism Management, 64*, 190-201.

Ballantyne, R., & Packer, J. (2009). Future directions for research in free-choice environmental learning. *Free-choice learning and the environment*, 157-170.

Ballantyne, R., Packer, J., & Falk, J. (2011). Visitors' learning for environmental sustainability: Testing short-and long-term impacts of wildlife tourism experiences using structural equation modelling. *Tourism Management, 32*(6), 1243-1252.

Ballantyne, R., Packer, J., & Hughes, K. (2009). Tourists' support for conservation messages and sustainable management practices in wildlife tourism experiences. *Tourism Management, 30*(5), 658-664.

Ballantyne, R., Packer, J., Hughes, K., & Dierking, L. (2007). Conservation learning in wildlife tourism settings: Lessons from research in zoos and aquariums. *Environmental education research, 13*(3), 367-383.

Bamberg, S. (2003). How does environmental concern influence specific environmentally related behaviors? A new answer to an old question. *Journal of Environmental Psychology, 23*(1), 21-32.

Barbier, E. B. (1987). The concept of sustainable economic development. *Environmental Conservation, 14*(2), 101-110.

Barbier, E. B., & Burgess, J. C. (2017). The Sustainable Development Goals and the systems approach to sustainability. Economics Discussion Papers, No 2017-28. *Kiel Institute for the World Economy. http://www. economics-ejournal. org/economics/discussionpapers/2017-28 Page, 2*(2).

Barker, L., & Dawson, C. (2012). *Exploring the relationship between outdoor recreation activities, community participation, and environmental attitudes.* Paper presented at the Proceedings of the 2010 Northeastern Recreation Research Symposium.

Barr, S. (2003). Strategies for sustainability: citizens and responsible environmental behaviour. *Area, 35*(3), 227-240.

Barr, S., Gilg, A., & Ford, N. (2005). Defining the multi-dimensional aspects of household waste management: A study of reported behavior in Devon. *Resources, Conservation and Recycling, 45*(2), 172-192.

Bechtel, R. B. (1987). The ubiquitous world of paper and pencil tests. *Methods in environmental and behavioral research*, 82-119.

Becken, S. (2004). How tourists and tourism experts perceive climate change and carbon-offsetting schemes. *Journal of Sustainable Tourism, 12*(4), 332-345.

Becker, C., & Murrmann, S. K. (1999). The effect of cultural orientation on the service timing preferences of customers in casual dining operations: an exploratory study. *International Journal of Hospitality Management, 18*(1), 59-65.

Beckmann, S. C. (2005). In the eye of the beholder: Danish consumer-citizens and sustainability *Consumers, Policy and the Environment A Tribute to Folke Ölander* (pp. 265-299): Springer.

Bell, S., Tyrväinen, L., Sievänen, T., Pröbstl, U., & Simpson, M. (2007). Outdoor recreation and nature tourism: a European perspective. *Living Reviews in Landscape Research, 1*(2), 1-46.

Bergin-Seers, S., & Mair, J. (2009). Emerging green tourists in Australia: Their behaviours and attitudes. *Tourism and hospitality research, 9*(2), 109-119.

Berns, G. N., & Simpson, S. (2009). Outdoor recreation participation and environmental concern: A research summary. *Journal of Experiential Education, 32*(1), 79-91.

Bjerke, T., & Kleiven, J. (2006). Outdoor recreation interests and environmental attitudes in Norway. *Managing leisure, 11*(2), 116-128.

Black, D. R., & Babrow, A. S. (1991). Identification of campaign recruitment strategies for a stepped smoking cessation intervention for a college campus. *Health Education & Behavior, 18*(2), 235-247.

Blaikie, N. W. (1992). The Nature and Origins of Ecological World Views: An Australian Study. *Social Science Quarterly, 73*(1), 144-165.

Blok, V., Wesselink, R., Studynka, O., & Kemp, R. (2014). Encouraging sustainability in the workplace: a survey on the pro-environmental behaviour of university employees. *Journal of Cleaner Production*.

Blok, V., Wesselink, R., Studynka, O., & Kemp, R. (2015). Encouraging sustainability in the workplace: a survey on the pro-environmental behaviour of university employees. *Journal of Cleaner Production, 106*, 55-67.

Bojan, M., & Janek, M. (2009). The Rokeach value survey in comparative study of Japanese and Slovenian students: Towards the underlying structure. *Studia Psychologica, 51*(1), 53-68.

Bond, M. H. (1988). Finding universal dimensions of individual variation in multicultural studies of values: The Rokeach and Chinese value surveys. *Journal of Personality and Social Psychology, 55*(6), 1009.

Bond, M. H., & Hwang, K.-k. (1986). *The social psychology of Chinese people*: Oxford University Press.

Bond, M. H., & Lee, P. (1978). *Face saving in Chinese culture: A discussion and experimental study of Hong Kong students*: Social Research Center, Chinese University of Hong Kong.

Brown, T. J., Ham, S. H., & Hughes, M. (2010). Picking up litter: An application of theory-based communication to influence tourist behaviour in protected areas. *Journal of Sustainable Tourism, 18*(7), 879-900.

Brundtland, G. H. (1987). *Report of the World Commission on environment and development:" our common future."*: United Nations.

Bryman, A. (2012). *Social research methods* (Vol. 4th). Oxford; New York: Oxford University Press.

Buckley, R. (2002). Tourism ecolabels. *Annals of Tourism Research, 29*(1), 183-208.

Buckley, R., Pickering, C., & Weaver, D. B. (2003). *Nature-based tourism, environment, and land management* (Vol. 1): CABI.

Burns, R. B. (2000). *Introduction to research methods* (Vol. 4th). Frenchs Forest, N.S.W: Pearson Education.

Cao, J. (2009). The analysis of tendency of transition from collectivism to individualism in China. *Cross-Cultural Communication, 5*(4), 42-50.

Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2010). Why ethical consumers don't walk their talk: Towards a framework for understanding the gap between the ethical purchase intentions and actual buying behaviour of ethically minded consumers. *Journal of Business Ethics, 97*(1), 139-158.

Casper, J. M., Pfahl, M. E., & Ebooks, C. (2015). *Sport management and the natural environment: theory and practice*. Abingdon, Oxon; New York: Routledge.

Center for Responsible Travel. (2013). The case for responsible Travel: Trends and Statistics. from http://www.responsibletravel.org/news/Fact_sheets/Crest_RTI_TrendStats_print_1_4%20(3).pdf

Cha, E. S., Kim, K. H., & Erlen, J. A. (2007). Translation of scales in cross‐cultural research: Issues and techniques. *Journal of advanced nursing, 58*(4), 386-395.

Chan, A., Hutchings, K., & Zhu, J. (2007). *Chinese cultural values : their dimensions and measurements*. Paper presented at the Australia-China International Business Research Conference. http://www.buseco.monash.edu.au/mgt/research/acibrc/

Chan, H., Wan, L. C., & Sin, L. Y. (2009). The contrasting effects of culture on consumer tolerance: Interpersonal face and impersonal fate. *Journal of consumer research, 36*(2), 292-304.

Chan, K. (1998). Mass communication and pro-environmental behaviour: waste recycling in Hong Kong. *Journal of environmental management, 52*(4), 317-325.

Chan, T., & Lin, G.-s. (1992). An empirical analysis of consumer decision processes in the People's Republic of China. *Journal of International Consumer Marketing, 4*(4), 33-48.

Chao, Y.-L., & Lam, S.-P. (2011). Measuring responsible environmental behavior: Self-reported and other-reported measures and their differences in testing a behavioral model. *Environment and behavior, 43*(1), 53-71.

Chatterjee, D. P. (2008). Oriental Disadvantage versus Occidental Exuberance Appraising Environmental Concern in India—A Case Study in a Local Context. *International Sociology, 23*(1), 5-33.

Chen, J. S., & Gursoy, D. (2001). An investigation of tourists' destination loyalty and preferences. *International Journal of Contemporary Hospitality Management, 13*(2), 79-85.

Chen, M. F. (2015). An examination of the value‐belief‐norm theory model in predicting pro‐environmental behaviour in Taiwan. *Asian Journal of Social Psychology, 18*(2), 145-151. doi: 10.1111/ajsp.12096

Chen, M. F., & Tung, P. J. (2014). Developing an extended Theory of Planned Behavior model to predict consumers' intention to visit green hotels. *International Journal of Hospitality Management, 36*, 221-230.

Cheng, S., Zhang, J., Lu, S., Xu, F., & Zhang, H. (2011). Influence of tourists' environmental tropisms on their attitudes to tourism and nature conservation in natural tourist destinations: A case study of Jiuzhaigou National Park in China. *Chinese Geographical Science, 21*(3), 377-384.

Cheung, L. T., Lo, A. Y., & Fok, L. (2017). Recreational specialization and ecologically responsible behaviour of Chinese birdwatchers in Hong Kong. *Journal of Sustainable Tourism, 25*(6), 817-831.

Cheung, S. F., Chan, D. K.-S., & Wong, Z. S.-Y. (1999). Reexamining the theory of planned behavior in understanding wastepaper recycling. *Environment and behavior, 31*(5), 587-612.

Chi, X., Wang, M. Y., & Reuter, M. A. (2014). E-waste collection channels and household recycling behaviors in Taizhou of China. *Journal of Cleaner Production, 80*, 87-95.

China Tourism Academy. (2016) Annual Report of China Outbound Tourism Development. Beijing: China Tourism Academy.

Chinese Culture Connection. (1987). Chinese values and the search for culture-free dimensions of culture. *International Journal of Psychology*(18), 143-164.

Chou, C.-J., & Chen, P.-C. (2014). Preferences and Willingness to Pay for Green Hotel Attributes in Tourist Choice Behavior: The Case of Taiwan. *Journal of Travel & Tourism Marketing, 31*(8), 937-957.

Chow, I., & Murphy, P. (2008). Travel activity preferences of Chinese outbound tourists for overseas destinations. *Journal of Hospitality & Leisure Marketing, 16*(1-2), 61-80.

Chryssohoidis, G. M., & Krystallis, A. (2005). Organic consumers' personal values research: Testing and validating the list of values (LOV) scale and implementing a value-based segmentation task. *Food Quality and Preference, 16*(7), 585-599.

Chung, S.-S., & Leung, M. M.-Y. (2007). The value-action gap in waste recycling: The case of undergraduates in Hong Kong. *Environmental Management, 40*(4), 603-612.

Churchill Jr, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 64-73.

CLSA Limited. (2016). Chinese outbound tourism remains on track to reach 200 million by 2020. from https://www.clsa.com/chinese-outbound-tourism-remains-on-track-to-reach-200-million-by-2020-clsa-survey-indicates-travellers-focused-on-cultural-destinations-rather-than-shopping/

Cohen, P., West, S. G., & Aiken, L. S. (2014). *Applied multiple regression/correlation analysis for the behavioral sciences*: Psychology Press.

Collins, C. M., Steg, L., & Koning, M. A. (2007). Customers' values, beliefs on sustainable corporate performance, and buying behavior. *Psychology & Marketing, 24*(6), 555-577.

Conner, M., Godin, G., Sheeran, P., & Germain, M. (2013). Some feelings are more important: Cognitive attitudes, affective attitudes, anticipated affect, and blood donation. *Health Psychology, 32*(3), 264.

Cordano, M., Welcomer, S., Scherer, R. F., Pradenas, L., & Parada, V. (2011). A Cross-Cultural Assessment of Three Theories of Pro-Environmental Behavior A Comparison Between Business Students of Chile and the United States. *Environment and behavior, 43*(5), 634-657.

Corral-Verdugo, V., & Figueredo, A. J. (1999). Convergent and Divergent Validity of Three Measures of Conservation Behavior The Multitrait-Multimethod Approach. *Environment and behavior, 31*(6), 805-820.

Corral-Verdugo, V. c. (1997). DUAL 'REALITIES'OF CONSERVATION BEHAVIOR: SELF-REPORTS VS OBSERVATIONS OF RE-USE AND RECYCLING BEHAVIOR. *Journal of Environmental Psychology, 17*(2), 135-145.

Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical assessment, research & evaluation, 10*(7), 1-9.

Cottrell, S. P. (2003). Influence of sociodemographics and environmental attitudes on general responsible environmental behavior among recreational boaters. *Environment and behavior, 35*(3), 347-375. doi: 10.1177/0013916503035003003

Crano, W. D., & Prislin, R. (2006). Attitudes and persuasion. *Annu. Rev. Psychol., 57*, 345-374.

Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches* (Vol. 4th). Thousand Oaks: SAGE Publications.

Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. St Leonards, NSW: Allen & Unwin.

Curtis, J., Ham, S. H., & Weiler, B. (2010). Identifying beliefs underlying visitor behaviour: A comparative elicitation study based on the theory of planned behaviour. *Annals of Leisure Research, 13*(4), 564-589.

Davis, G., Phillips, P. S., Read, A. D., & Iida, Y. (2006). Demonstrating the need for the development of internal research capacity: Understanding recycling participation using the Theory of Planned Behaviour in West Oxfordshire, UK. *Resources, Conservation and Recycling, 46*(2), 115-127.

Davis, M., Challenger, R., Clegg, C., & Healey, M. (2008). Understanding and promoting green behaviour in the use of existing buildings. *A Report to Arup*.

Dawes, J. G. (2008). Do data characteristics change according to the number of scale points used? An experiment using 5 point, 7 point and 10 point scales. *International Journal of Market Research, 51*(1).

De Groot, J. I., & Steg, L. (2007). Value orientations and environmental beliefs in five countries validity of an instrument to measure egoistic, altruistic and biospheric value orientations. *Journal of Cross-Cultural Psychology, 38*(3), 318-332.

De Groot, J. I., & Steg, L. (2008). Value orientations to explain beliefs related to environmental significant behavior how to measure egoistic, altruistic, and biospheric value orientations. *Environment and behavior, 40*(3), 330-354.

De Groot, J. I., & Steg, L. (2010). Relationships between value orientations, self-determined motivational types and pro-environmental behavioural intentions. *Journal of Environmental Psychology, 30*(4), 368-378.

Deng, J., Walker, G. J., & Swinnerton, G. (2006). A comparison of environmental values and attitudes between Chinese in Canada and Anglo-Canadians. *Environment and behavior, 38*(1), 22-47.

Diefenbach, M. A., Weinstein, N. D., & O'Reilly, J. (1993). Scales for assessing perceptions of health hazard susceptibility. *Health education research, 8*(2), 181-192.

Do Valle, P. O., Reis, E., Menezes, J., & Rebelo, E. (2004). Behavioral determinants of household recycling participation the Portuguese case. *Environment and behavior, 36*(4), 505-540.

Dodds, R., & Joppe, M. (2001). Promoting urban green tourism: The development of the other map of Toronto. *Journal of Vacation Marketing, 7*(3), 261-267.

Dolnicar, S. (2010). Identifying tourists with smaller environmental footprints. *Journal of Sustainable Tourism, 18*(6), 717-734.

Dolnicar, S., & Grün, B. (2009). Environmentally Friendly Behavior Can Heterogeneity Among Individuals and Contexts/Environments Be Harvested for Improved Sustainable Management? *Environment and behavior, 41*(5), 693-714.

Dolnicar, S., Grün, B., & Leisch, F. (2011). Quick, simple and reliable: Forced binary survey questions. *International Journal of Market Research, 53*(2), 231.

Dolnicar, S., Hurlimann, A., & Grün, B. (2012). Water conservation behavior in Australia. *Journal of environmental management, 105*(14), 44-52. doi: 10.1016/j.jenvman.2012.03.042

Dolnicar, S., & Leisch, F. (2008). An investigation of tourists' patterns of obligation to protect the environment. *Journal of Travel Research, 46*(4), 381-391.

Draper, N. R., & Smith, H. (2014). *Applied regression analysis* (Vol. 326): John Wiley & Sons.

Dunlap, R. E. (2008). The new environmental paradigm scale: From marginality to worldwide use. *The journal of environmental education, 40*(1), 3-18.

Dunlap, R. E., & Heffernan, R. B. (1975). Outdoor Recreation and Environmental Concern: An Empirical Examination. *Rural Sociology, 40*(1), 18.

Dunlap, R. E., & Van Liere, K. D. (1978). The "new environmental paradigm". *The journal of environmental education, 9*(4), 10-19.

Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New Trends in Measuring Environmental Attitudes: Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues, 56*(3), 425-442. doi: 10.1111/0022-4537.00176

Eagles, P. F., Higgins, B. R., Lindberg, K., Wood, M. E., & Engeldrum, D. (1998). Ecotourism market and industry structure. *Ecotourism: a guide for planners and managers.*, 11-43.

Easterby-Smith, M., Thorpe, R., & Jackson, P. (2008). *Management research* (Vol. 3rd). London: SAGE.

Eckersley, R. (1992). *Environmentalism and political theory: Toward an ecocentric approach*: Cambridge Univ Press.

Eckhardt, G., & Zhao, X. (2012). Buddhism and Consumption in China. *ACR Asia-Pacific Advances*.

Egri, C. P., & Ralston, D. A. (2004). Generation cohorts and personal values: A comparison of China and the United States. *Organization science, 15*(2), 210-220.

Eilam, E., & Trop, T. (2012). Environmental Attitudes and Environmental Behavior—Which Is the Horse and Which Is the Cart? *Sustainability, 4*(9), 2210-2246.

Fairweather, J. R., Maslin, C., & Simmons, D. G. (2005). Environmental values and response to ecolabels among international visitors to New Zealand. *Journal of Sustainable Tourism, 13*(1), 82-98.

Fang, T. (2003). A critique of Hofstede's fifth national culture dimension. *International Journal of Cross Cultural Management, 3*(3), 347-368.

Fang, T. (2012). Yin Yang: A new perspective on culture. *Management and organization Review, 8*(1), 25-50.

Faure, G. O., & Fang, T. (2008). Changing Chinese values: Keeping up with paradoxes. *International business review, 17*(2), 194-207.

Feather, N. T. (1975). *Values in education and society*: Free Press.

Feng, H., Chen, X., Heck, P., & Miao, H. (2014). An Entropy-Perspective Study on the Sustainable Development Potential of Tourism Destination Ecosystem in Dunhuang, China. *Sustainability, 6*(12), 8980-9006.

Field, A. (2009). *Discovering statistics using SPSS*: Sage publications.

Finstad, K. (2010). Response interpolation and scale sensitivity: Evidence against 5-point scales. *Journal of Usability Studies, 5*(3), 104-110.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*.

Fisher, R. J. (1993). Social desirability bias and the validity of indirect questioning. *Journal of consumer research*, 303-315.

Flynn, B. B., Sakakibara, S., Schroeder, R. G., Bates, K. A., & Flynn, E. J. (1990). Empirical research methods in operations management. *Journal of operations management, 9*(2), 250-284.

Fransson, N., & Gärling, T. (1999). Environmental concern: Conceptual definitions, measurement methods, and research findings. *Journal of Environmental Psychology, 19*(4), 369-382.

Frederiks, E. R., Stenner, K., & Hobman, E. V. (2015). Household energy use: Applying behavioural economics to understand consumer decision-making and behaviour. *Renewable and Sustainable Energy Reviews, 41*, 1385-1394.

Fu, W., Koo, W., & Kim, Y.-K. (2014). Chinese-Inspired Products: Value-Attitude-Behavior. *International Journal of Marketing Studies, 6*(3), p76.

Fu, X., Cai, L., & Lehto, X. (2015). A confucian analysis of Chinese tourists' motivations. *Journal of Travel & Tourism Marketing, 32*(3), 180-198.

Gao, H., Huang, S. S., & Brown, G. (2017). The influence of face on Chinese tourists' gift purchase behaviour: The moderating role of the gift giver–receiver relationship. *Tourism Management, 62*, 97-106.

Gardiner, S., & Scott, N. (2014). Successful tourism clusters: Passion in paradise. *Annals of Tourism Research, 46*, 171-173.

Gatersleben, B., Steg, L., & Vlek, C. (2002). Measurement and determinants of environmentally significant consumer behavior. *Environment and behavior, 34*(3), 335-362.

Gibson, A., Dodds, R., Joppe, M., & Jamieson, B. (2003). Ecotourism in the city? Toronto's green tourism association. *International Journal of Contemporary Hospitality Management, 15*(6), 324-327.

Gifford, R. (1997). *Environmental Psychology* (2nd ed.). Boston, MA: Allyn & Bacon.

Goodwin, H., & Francis, J. (2003). Ethical and responsible tourism: Consumer trends in the UK. *Journal of Vacation Marketing, 9*(3), 271-284.

Grunert, S. C., & Juhl, H. J. (1995). Values, environmental attitudes, and buying of organic foods. *Journal of economic psychology, 16*(1), 39-62.

Grybovych, O., Cela, A., Inui, Y., & Lankford, S. V. (2005). An exploratory study of environmental values and beliefs of Japanese adventure tourists in Hawaii. *e-Review of Tourism Research, 3*(2), 23-30.

Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences on attitude-behavior relationships a natural experiment with curbside recycling. *Environment and behavior, 27*(5), 699-718.

Guang, X. (2013). Buddhist impact on Chinese culture. *Asian Philosophy, 23*(4), 305-322.

Guba, E. G. (1990). *The Paradigm dialog*. Newbury Park, Calif: Sage Publications.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research, 2*(163-194).

Hackett, S. C. (2010). *Environmental and natural resources economics: Theory, policy, and the sustainable society*: ME Sharpe.

Ham, S., & Weiler, B. (2001). *100,000 beating bird hearts: Tourism, wildlife and interpretation.* Paper presented at the Keynote Presentation at the first National Conference on Wildlife Tourism in Australia, Hobart, Tasmania, Australia.

Han, H. (2015). Travelers' pro-environmental behavior in a green lodging context: Converging value-belief-norm theory and the theory of planned behavior. *Tourism Management, 47*, 164-177.

Han, H., Hsu, L.-T. J., & Sheu, C. (2010). Application of the theory of planned behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism Management, 31*(3), 325-334.

Hansla, A., Gamble, A., Juliusson, A., & Gärling, T. (2008). The relationships between awareness of consequences, environmental concern, and value orientations. *Journal of Environmental Psychology, 28*(1), 1-9.

Harland, P., Staats, H., & Wilke, H. A. (1999). Explaining proenvironmental intention and behavior by personal norms and the theory of planned behavior1. *Journal of Applied Social Psychology, 29*(12), 2505-2528.

Harris, J. M. (2003). Sustainability and sustainable development. *International Society for Ecological Economics, 1*(1), 1-12.

Harris, P. G. (2008). Green or brown? Environmental attitudes and governance in greater China. *Nature and Culture, 3*(2), 151-182.

Hartig, T., Kaiser, F. G., & Bowler, P. A. (2001). Psychological restoration in nature as a positive motivation for ecological behavior. *Environment and behavior, 33*(4), 590-607.

Haslam, N., Whelan, J., & Bastian, B. (2009). Big Five traits mediate associations between values and subjective well-being. *Personality and Individual Differences, 46*(1), 40-42.

Hawcroft, L. J., & Milfont, T. L. (2010). The use (and abuse) of the new environmental paradigm scale over the last 30 years: A meta-analysis. *Journal of Environmental Psychology, 30*(2), 143-158.

Hawkins, D. I., Best, R. J., & Coney, K. A. (2004). *Consumer behavior: building marketing strategy*. Boston: McGraw-Hill Irwin.

Hedlund-de Witt, A. (2012). Exploring worldviews and their relationships to sustainable lifestyles: Towards a new conceptual and methodological approach. *Ecological Economics, 84*, 74-83.

Hedlund, T. (2011). The impact of values, environmental concern, and willingness to accept economic sacrifices to protect the environment on tourists' intentions to buy ecologically sustainable tourism alternatives. *Tourism and hospitality research, 11*(4), 278-288.

Ho, C. I., Liao, T. Y., Huang, S. C., & Chen, H. M. (2014). Beyond environmental concerns: using means–end chains to explore the personal psychological values and motivations of leisure/recreational cyclists. *Journal of Sustainable Tourism, 23*(2), 234-254. doi: 10.1080/09669582.2014.943762

Ho, D. Y. (1995). Selfhood and identity in Confucianism, Taoism, Buddhism, and Hinduism: contrasts with the West. *Journal for the Theory of Social Behaviour, 25*(2), 115-139.

Hofstede, G. (1984). *Culture's consequences: international differences in work-related values* (Vol. 5.). Beverly Hills: Sage Publications.

Homer, P. M., & Kahle, L. R. (1988). A structural equation test of the value-attitude-behavior hierarchy. *Journal of Personality and Social Psychology, 54*(4), 638.

Hong, D. (2006). Measurement of environmental attitude: application and assessment of the revised NEP in China. *Chinese Journal of Sociology, 26*(5), 71-92.

Hong, D., & Lu, C. (2011). Multi-layer analysis of public environmental concern. *Sociological Studies, 6*, 154-170.

Hong, D., & Xiao, C. (2007). Gender differences in environmental concern. *Sociological Studies, 2*, 111-135.

Honkanen, P., & Verplanken, B. (2004). Understanding attitudes towards genetically modified food: The role of values and attitude strength. *Journal of Consumer Policy, 27*(4), 401-420.

Hsu, C. H., & Huang, S. (2012). An extension of the theory of planned behavior model for tourists. *Journal of Hospitality & Tourism Research, 36*(3), 390-417.

Hsu, C. H., & Huang, S. S. (2016). Reconfiguring Chinese cultural values and their tourism implications. *Tourism Management, 54*, 230-242.

Huang, P., Zhang, X., & Deng, X. (2006). Survey and analysis of public environmental awareness and performance in Ningbo, China: a case study on household electrical and electronic equipment. *Journal of Cleaner Production, 14*(18), 1635-1643.

Huang, S., & Gross, M. J. (2010). Australia's destination image among mainland Chinese travelers: An exploratory study. *Journal of Travel & Tourism Marketing, 27*(1), 63-81.

Huang, S., & Hsu, C. H. (2005). Mainland Chinese residents' perceptions and motivations of visiting Hong Kong: Evidence from focus group interviews. *Asia Pacific Journal of Tourism Research, 10*(2), 191-205.

Huang, S., & Hsu, C. H. (2008). Recent tourism and hospitality research in China. *International Journal of Hospitality & Tourism Administration, 9*(3), 267-287.

Huffman, A. H., Van Der Werff, B. R., Henning, J. B., & Watrous-Rodriguez, K. (2014). When do recycling attitudes predict recycling? An investigation of self-reported versus observed behavior. *Journal of Environmental Psychology, 38*, 262-270.

Hughes, K. (2013). Measuring the impact of viewing wildlife: do positive intentions equate to long-term changes in conservation behaviour? *Journal of Sustainable Tourism, 21*(1), 42-59.

Hunter, L. M., Hatch, A., & Johnson, A. (2004). Cross‐National Gender Variation in Environmental Behaviors*. *Social Science Quarterly, 85*(3), 677-694.

Ibtissem, M. H. (2010). Application of value beliefs norms theory to the energy conservation behaviour. *Journal of Sustainable Development, 3*(2), p129.

Jackson, E. L. (1986). Outdoor recreation participation and attitudes to the environment. *Leisure studies, 5*(1), 1-23.

Jakovcevic, A., & Steg, L. (2013). Sustainable transportation in Argentina: Values, beliefs, norms and car use reduction. *Transportation Research Part F: Traffic Psychology and Behaviour, 20*, 70-79.

Jalilvand, M. R., & Samiei, N. (2012). The impact of electronic word of mouth on a tourism destination choice: Testing the theory of planned behavior (TPB). *Internet Research: Electronic Networking Applications and Policy, 22*(5), 591-612.

Jansson, J., Marell, A., & Nordlund, A. (2011). Exploring consumer adoption of a high involvement eco‐innovation using value‐belief‐norm theory. *Journal of Consumer Behaviour, 10*(1), 51-60.

Jayawardhena, C. (2004). Personal values' influence on e-shopping attitude and behaviour. *Internet research, 14*(2), 127-138.

Jenkins, T. (2002). Chinese traditional thought and practice: lessons for an ecological economics worldview. *Ecological Economics, 40*(1), 39-52.

Jennings, G. (2010). *Tourism research* (Vol. 2nd). Milton, Qld: John Wiley & Sons.

Jiang, S., Scott, N., Ding, P., & Zou, T. T. (2012). Exploring Chinese Outbound Tourism Motivation Using Means–End Chains: A Conceptual Model. *Journal of China Tourism Research, 8*(4), 359-372. doi: 10.1080/19388160.2012.729425

Jie Li, J. W., & Carr, N. (2004). Visitor satisfaction: An analysis of mainland Chinese tourists on the Australian Gold Coast. *International Journal of Hospitality & Tourism Administration, 5*(3), 31-48.

Jin, X., & Wang, Y. (2016). Chinese outbound tourism research: A review. *Journal of Travel Research, 55*(4), 440-453.

Johansson, M., Rahm, J., & Gyllin, M. (2013). Landowners' participation in biodiversity conservation examined through the Value-Belief-Norm theory. *Landscape Research, 38*(3), 295-311.

Johnson, D. (2002). Environmentally sustainable cruise tourism: a reality check. *Marine Policy, 26*(4), 261-270.

Jones, M. L. (2007). Hofstede-culturally questionable?

Joshi, A., Kale, S., Chandel, S., & Pal, D. (2015). Likert scale: explored and explained. *British Journal of Applied Science & Technology, 7*(4), 396.

Juvan, E., & Dolnicar, S. (2014a). The attitude–behaviour gap in sustainable tourism. *Annals of Tourism Research, 48*, 76-95.

Juvan, E., & Dolnicar, S. (2014b). Can tourists easily choose a low carbon footprint vacation? *Journal of Sustainable Tourism, 22*(2), 175-194.

Kahle, L. R., Beatty, S. E., & Homer, P. (1986). Alternative measurement approaches to consumer values: the list of values (LOV) and values and life style (VALS). *Journal of consumer research*, 405-409.

Kahle, L. R., & Homer, P. M. (1985). Physical attractiveness of the celebrity endorser: A social adaptation perspective. *Journal of consumer research*, 954-961.

Kaiser, F. G., Hübner, G., & Bogner, F. X. (2005). Contrasting the Theory of Planned Behavior With the Value‐Belief‐Norm Model in Explaining Conservation Behavior1. *Journal of Applied Social Psychology, 35*(10), 2150-2170.

Kaiser, F. G., Ranney, M., Hartig, T., & Bowler, P. A. (1999). Ecological behavior, environmental attitude, and feelings of responsibility for the environment. *European psychologist, 4*(2), 59.

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and psychological measurement, 20*(1), 141-151.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31-36.

Kamakura, W. A., & Novak, T. P. (1992). Value-system segmentation: Exploring the meaning of LOV. *Journal of consumer research*, 119-132.

Kang, K. H., Stein, L., Heo, C. Y., & Lee, S. (2012). Consumers' willingness to pay for green initiatives of the hotel industry. *International Journal of Hospitality Management, 31*(2), 564-572.

Keating, B. (2009). Managing ethics in the tourism supply chain: The case of Chinese travel to Australia. *International Journal of Tourism Research, 11*(4), 403-408.

Keating, B. W., Huang, S., Kriz, A., & Heung, V. (2015). A systematic review of the Chinese outbound tourism literature: 1983–2012. *Journal of Travel & Tourism Marketing, 32*(1-2), 2-17.

Kerr, L. (1991). Ducks don't vote: The dilemma of wildland wildlife managers. *Trends, 28*(2), 30-34.

Kiatkawsin, K., & Han, H. (2017). Young travelers' intention to behave pro-environmentally: Merging the value-belief-norm theory and the expectancy theory. *Tourism Management, 59*, 76-88.

Kim, A. K., Airey, D., & Szivas, E. (2011). The multiple assessment of interpretation effectiveness: Promoting visitors' environmental attitudes and behavior. *Journal of Travel Research, 50*(3), 321-334.

Kim, J. O., Forsythe, S., Gu, Q., & Jae Moon, S. (2002). Cross-cultural consumer values, needs and purchase behavior. *Journal of Consumer Marketing, 19*(6), 481-502.

Kim, Y., & Choi, S. M. (2005). Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and PCE. *Advances in consumer research, 32*, 592.

Kim, Y., & Han, H. (2010). Intention to pay conventional-hotel prices at a green hotel–a modification of the theory of planned behavior. *Journal of Sustainable Tourism, 18*(8), 997-1014.

King, M. F., & Bruner, G. C. (2000). Social desirability bias: A neglected aspect of validity testing. *Psychology and Marketing, 17*(2), 79-103.

Klöckner, C. A. (2013). A comprehensive model of the psychology of environmental behaviour—A meta-analysis. *Global Environmental Change, 23*(5), 1028-1038.

Kluckhohn, F. R., & Strodtbeck, F. L. (1961). Variations in value orientations.

Kortenkamp, K. V., & Moore, C. F. (2006). Time, uncertainty, and individual differences in decisions to cooperate in resource dilemmas. *Personality and social psychology bulletin, 32*(5), 603-615.

Kostova, Z., Vladimirova, E., & Radoynovska, B. (2011). THE ENVIRONMENTAL CONCERN OF NINE-GRADE STUDENTS FROM A SECONDARY PROFESSIONAL SCHOOL. *Bulgarian Journal of Science & Education Policy, 5*(2).

Krosnick, J. A., Judd, C. M., & Wittenbrink, B. (2005). The measurement of attitudes. *The handbook of attitudes*, 21-76.

Kwek, A., & Lee, Y.-S. (2010). Chinese tourists and Confucianism. *Asia Pacific Journal of Tourism Research, 15*(2), 129-141.

López, A. G., & Cuervo-Arango, M. A. (2008). Relationship among values, beliefs, norms and ecological behaviour. *Psicothema, 20*(4), 623-629.

Lackey, B. K. (2003). Contextual analysis of interpretation focused on human-black bear conflicts in Yosemite National Park. *Applied Environmental Education and Communication: An International Journal, 2*(1), 11-21.

Lalonde, R., & Jackson, E. L. (2002). The new environmental paradigm scale: has it outlived its usefulness? *The journal of environmental education, 33*(4), 28-36.

Lam, S.-P., & Cheng, S.-I. (2002). Cross-informant agreement in reports of environmental behavior and the effect of cross-questioning on report accuracy. *Environment and behavior, 34*(4), 508-520.

Lam, S. P., & Chen, J. K. (2006). What makes customers bring their bags or buy bags from the shop? A survey of customers at a Taiwan hypermarket. *Environment and behavior, 38*(3), 318-332.

Lam, T., & Hsu, C. H. (2004). Theory of planned behavior: Potential travelers from China. *Journal of Hospitality & Tourism Research, 28*(4), 463-482.

Lam, T., & Hsu, C. H. (2006). Predicting behavioral intention of choosing a travel destination. *Tourism Management, 27*(4), 589-599.

Larson, L. R., Whiting, J. W., & Green, G. T. (2011). Exploring the influence of outdoor recreation participation on pro-environmental behaviour in a demographically diverse population. *Local Environment, 16*(1), 67-86.

Lau, S. (1988). The value orientations of Chinese university students in Hong Kong. *International Journal of Psychology, 23*(1-6), 583-596.

Laudenslager, M. S., Holt, D. T., & Lofgren, S. T. (2004). UNDERSTANDING AIR FORCE MEMBERS'INTENTIONS TO PARTICIPATE IN PRO-ENVIRONMENTAL BEHAVIORS: AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOR 1. *Perceptual and motor skills, 98*(3c), 1162-1170.

Le Claire, K. A. (1992). Ethnic attitudes and Hong Kong Chinese consumption values. *Journal of International Consumer Marketing, 4*(4), 73-87.

Le Claire, K. A. (1993). Chinese complaints behaviour. *Journal of International Consumer Marketing, 5*(4), 73-92.

Lee, K. (2009). Gender differences in Hong Kong adolescent consumers' green purchasing behavior. *Journal of Consumer Marketing, 26*(2), 87-96.

Lee, M. J., & Back, K.-J. (2008). Association meeting participation: A test of competing models. *Journal of Travel Research, 46*(3), 300-310.

Lee, T. H., & Jan, F.-H. (2015). The Effects of Recreation Experience, Environmental Attitude, and Biospheric Value on the Environmentally Responsible Behavior of Nature-Based Tourists. *Environmental Management*, 1-16.

Lee, T. H., Jan, F. H., & Yang, C. C. (2013). Conceptualizing and measuring environmentally responsible behaviors from the perspective of community-based tourists. *Tourism Management, 36*, 454-468.

Lee, W. H., & Moscardo, G. (2005). Understanding the impact of ecotourism resort experiences on tourists' environmental attitudes and behavioural intentions. *Journal of Sustainable Tourism, 13*(6), 546-565.

Leonidou, L. C., Coudounaris, D. N., Kvasova, O., & Christodoulides, P. (2015). Drivers and Outcomes of Green Tourist Attitudes and Behavior: Sociodemographic Moderating Effects. *Psychology & Marketing, 32*(6), 635-650.

Leonidou, L. C., Leonidou, C. N., & Kvasova, O. (2010). Antecedents and outcomes of consumer environmentally friendly attitudes and behaviour. *Journal of Marketing Management, 26*(13-14), 1319-1344.

Lessig, V. P. (1975). A measurement of dependencies between values and other levels of the consumer's belief space. *Journal of Business Research, 3*(3), 227-240.

Leung, K. (2010). Beliefs in Chinese culture. *The Oxford handbook of Chinese psychology*, 221-240.

Leung, K., Bhagat, R. S., Buchan, N. R., Erez, M., & Gibson, C. B. (2005). Culture and international business: Recent advances and their implications for future research. *Journal of international business studies*, 357-378.

Leung, S. K., & Bond, M. H. (2001). Interpersonal communication and personality: Self and other perspectives. *Asian Journal of Social Psychology, 4*(1), 69-86.

Li, J., Zhang, X.-A., & Sun, G. (2015). Effects of "face" consciousness on status consumption among Chinese consumers: Perceived social value as a mediator. *Psychological reports, 116*(1), 280-291.

Li, M., & Cai, L. A. (2012). The effects of personal values on travel motivation and behavioral intention. *Journal of Travel Research, 51*(4), 473-487.

Li, X., Harrill, R., Uysal, M., Burnett, T., & Zhan, X. (2010). Estimating the size of the Chinese outbound travel market: A demand-side approach. *Tourism Management, 31*(2), 250-259.

Li, X., Lai, C., Harrill, R., Kline, S., & Wang, L. (2011). When east meets west: An exploratory study on Chinese outbound tourists' travel expectations. *Tourism Management, 32*(4), 741-749.

Li, X., & Stepchenkova, S. (2012). Chinese outbound tourists' destination image of America: Part I. *Journal of Travel Research, 51*(3), 250-266.

Lin, X., & Lu Wang, C. (2010). The heterogeneity of Chinese consumer values: a dual structure explanation. *Cross Cultural Management: An International Journal, 17*(3), 244-256. doi: doi:10.1108/13527601011068342

Lu, Z. (2011). The Study of Chinese Tourists' Motivations to Canada: 中国旅客到加拿大的动机研究. *Journal of China Tourism Research, 7*(4), 345-354.

Lundmark, C. (2007). The new ecological paradigm revisited: Anchoring the NEP scale in environmental ethics. *Environmental education research, 13*(3), 329-347.

Luo, Y., & Deng, J. (2007). The new environmental paradigm and nature-based tourism motivation. *Journal of Travel Research*.

Lustig, M. W., & Koester, J. (2012). *Intercultural competence: interpersonal communication across cultures* (Vol. 7th). Upper Saddle River, N.J: Pearson Prentice Hall.

MacKinnon, D. P., Fairchild, A. J., & Fritz, M. S. (2007). Mediation analysis. *Annu. Rev. Psychol., 58*, 593-614.

Madrigal, R. (1995). Personal values, traveler personality type, and leisure travel style. *Journal of leisure research, 27*, 125-125.

Malhotra, N. K. (2010). *Marketing research: an applied orientation* (Vol. 6th, Globaliton.). Upper Saddle River, N.J; London: Pearson Education.

Mamdouh, T. A. L. Z. (2015). Applications of Planned Behavior Theory (TPB) in Jordanian Tourism. *International Journal of Marketing Studies, 7*(3). doi: 10.5539/ijms.v7n3p95

Markle, G. L. (2013). Pro-Environmental Behavior: Does It Matter How It's Measured? Development and Validation of the Pro-Environmental Behavior Scale (PEBS). *Human ecology, 41*(6), 905-914.

Martinez-Espineira, R., García-Valiñas, M. A., & Nauges, C. (2014). Households' pro-environmental habits and investments in water and energy consumption: Determinants and relationships. *Journal of environmental management, 133*, 174-183.

Martinsson, J., Lundqvist, L. J., & Sundström, A. (2011). Energy saving in Swedish households. The (relative) importance of environmental attitudes. *Energy Policy, 39*(9), 5182-5191. doi: 10.1016/j.enpol.2011.05.046

Maslow, A. H. (1954). *Motivation and personality*. New York: Harper.

Matthews, B. M. (2000). The Chinese Value Survey: an interpretation of value scales and consideration of some preliminary results.

Maxim, C. (2015). Drivers of success in implementing sustainable tourism policies in urban areas. *Tourism Planning & Development, 12*(1), 37-47.

Maxim, C. (2016). Sustainable tourism implementation in urban areas: a case study of London. *Journal of Sustainable Tourism, 24*(7), 971-989.

Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology, 24*(4), 503-515.

McCarty, J. A., & Shrum, L. (1994). The recycling of solid wastes: Personal values, value orientations, and attitudes about recycling as antecedents of recycling behavior. *Journal of Business Research, 30*(1), 53-62.

McDonald, S., Oates, C. J., Alevizou, P. J., Young, C. W., & Hwang, K. (2012). Individual strategies for sustainable consumption. *Journal of Marketing Management, 28*(3-4), 445-468.

McSweeney, B. (2002). Hofstede's model of national cultural differences and their consequences: A triumph of faith-a failure of analysis. *Human relations, 55*(1), 89-118.

Mehmetoglu, M., Hines, K., Graumann, C., & Greibrokk, J. (2010). The relationship between personal values and tourism behaviour: A segmentation approach. *Journal of Vacation Marketing, 16*(1), 17-27.

Miao, L., & Wei, W. (2013). Consumers' pro-environmental behavior and the underlying motivations: A comparison between household and hotel settings. *International Journal of Hospitality Management, 32*, 102-112.

Michelson, W. (1987). Measuring macroenvironment and behavior: The time budget and time geography. *Methods in environmental and behavioral research*, 216-243.

Milfont, T. L. (2009). The effects of social desirability on self-reported environmental attitudes and ecological behaviour. *The Environmentalist, 29*(3), 263-269.

Milfont, T. L., & Duckitt, J. (2004). The structure of environmental attitudes: A first-and second-order confirmatory factor analysis. *Journal of Environmental Psychology, 24*(3), 289-303.

Milfont, T. L., & Duckitt, J. (2006). Preservation and utilization: Understanding the structure of environmental attitudes. *Medio Ambiente y Comportamiento Humano, 7*(1), 29-50.

Milfont, T. L., & Duckitt, J. (2010). The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. *Journal of Environmental Psychology, 30*(1), 80-94.

Milfont, T. L., Duckitt, J., & Cameron, L. D. (2006). A cross-cultural study of environmental motive concerns and their implications for proenvironmental behavior. *Environment and behavior, 38*(6), 745-767.

Milfont, T. L., Duckitt, J., & Wagner, C. (2010). A cross‐cultural test of the value–attitude–behavior hierarchy. *Journal of Applied Social Psychology, 40*(11), 2791-2813.

Miller, D., Merrilees, B., & Coghlan, A. (2015). Sustainable urban tourism: understanding and developing visitor pro-environmental behaviours. *Journal of Sustainable Tourism, 23*(1), 26-46.

Minton, A. P., & Rose, R. L. (1997). The effects of environmental concern on environmentally friendly consumer behavior: An exploratory study. *Journal of Business Research, 40*(1), 37-48.

Mitra, R. (2017). Sustainability and Sustainable Development *The International Encyclopedia of Organizational Communication*: John Wiley & Sons, Inc.

Mok, C., & DeFranco, A. L. (2000). Chinese cultural values: Their implications for travel and tourism marketing. *Journal of Travel & Tourism Marketing, 8*(2), 99-114.

Moore, S. A., & Polley, A. (2007). Defining indicators and standards for tourism impacts in protected areas: Cape Range National Park, Australia. *Environmental Management, 39*(3), 291-300.

Moscardo, G., & Lee, W. H. (2005). Understanding the Impact of Ecotourism Resort Experiences on Tourists' Environmental Attitudes and Behavioural Intentions. *Journal of Sustainable Tourism, 13*(6), 546-565. doi: 10.1080/09669580508668581

Moser, A. K. (2015). Thinking green, buying green? Drivers of pro-environmental purchasing behavior. *Journal of Consumer Marketing, 32*(3), 167-175.

Mostafa, M. M. (2007). Gender differences in Egyptian consumers' green purchase behaviour: the effects of environmental knowledge, concern and attitude. *International Journal of Consumer Studies, 31*(3), 220-229. doi: 10.1111/j.1470-6431.2006.00523.x

Mothersbaugh, D., Best, R., & Hawkins, D. (2007). Consumer Behaviour: Building Marketing Strategy: Boston: McGraw-Hill.[Links].

Muzikante, I., & Reņģe, V. (2011). Attitude Function as a Moderator in Values-Attitudes-Behavior Relations. *Procedia-Social and Behavioral Sciences, 30*, 1003-1008.

Neuman, W. L. (2011). *Social research methods: qualitative and quantitative approaches* (Vol. 7th, international). Boston, [Mass.]: Pearson.

Nordlund, A. M., & Garvill, J. (2002). Value structures behind proenvironmental behavior. *Environment and behavior, 34*(6), 740-756.

Novak, P. (1993). Tao how? Asian religions and the problem of environmental degradation. *Revision, 16*(2), 77-82.

Nunkoo, R., & Ramkissoon, H. (2010). Gendered theory of planned behaviour and residents' support for tourism. *Current Issues in Tourism, 13*(6), 525-540.

Nunnally, J. C. (1967). Psychometric theory.

O'Connor, R. T., Lerman, D. C., Fritz, J. N., & Hodde, H. B. (2010). Effects of number and location of bins on plastic recycling at a university. *Journal of applied behavior analysis, 43*(4), 711-715.

O'Connor, A., & Gronewold, K. L. (2013). Black gold, green earth: An analysis of the petroleum industry's CSR environmental sustainability discourse. *Management Communication Quarterly, 27*(2), 210-236.

Ohtomo, S., & Hirose, Y. (2007). The dual-process of reactive and intentional decision-making involved in eco-friendly behavior. *Journal of Environmental Psychology, 27*(2), 117-125.

Olli, E., Grendstad, G., & Wollebaek, D. (2001). Correlates of environmental behaviors bringing back social context. *Environment and behavior, 33*(2), 181-208.

Oreg, S., & Katz-Gerro, T. (2006). Predicting proenvironmental behavior cross-nationally values, the theory of planned behavior, and value-belief-norm theory. *Environment and behavior, 38*(4), 462-483.

Organisation for Economic Co-operation and Development. (2008). *Tourism in OECD Countries: Trends and Policies*: Organisation for Economic Co-operation and Development.

Paço, A., Alves, H., & Shiel, C. (2013). Development of a green consumer behaviour model. *International Journal of Consumer Studies, 37*(4), 414-421.

Packer, J., Ballantyne, R., & Hughes, K. (2014). Chinese and Australian tourists' attitudes to nature, animals and environmental issues: Implications for the design of nature-based tourism experiences. *Tourism Management, 44*, 101-107.

Pato-Oliveira, C., Ros, M., Tróccoli, B., & Tamayo, A. (2004). Environmental Beliefs: an Empirical Validation with Brazilian Students.

Paulhus, D. L. (1991). Measurement and control of response bias.

Paulhus, D. L., & Vazire, S. (2007). The self-report method. *Handbook of research methods in personality psychology*, 224-239.

Paulssen, M., Temme, D., Vij, A., & Walker, J. L. (2014). Values, attitudes and travel behavior: a hierarchical latent variable mixed logit model of travel mode choice. *Transportation, 41*(4), 873-888.

Peeters, P., & Schouten, F. (2006). Reducing the ecological footprint of inbound tourism and transport to Amsterdam. *Journal of Sustainable Tourism, 14*(2), 157-171.

Peng, K., Nisbett, R. E., & Wong, N. Y. (1997). Validity problems comparing values across cultures and possible solutions. *Psychological methods, 2*(4), 329.

Perugini, M., & Bagozzi, R. P. (2001). The role of desires and anticipated emotions in goal‐directed behaviours: Broadening and deepening the theory of planned behaviour. *British Journal of Social Psychology, 40*(1), 79-98.

Petrick, J. F., & Backman, S. J. (2002). An examination of the construct of perceived value for the prediction of golf travelers' intentions to revisit. *Journal of Travel Research, 41*(1), 38-45.

Pitts, R. E., & Woodside, A. G. (1986). Personal values and travel decisions. *Journal of Travel Research, 25*(1), 20-25.

Pizam, A., & Calantone, R. (1987). Beyond psychographics—values as determinants of tourist behavior. *International Journal of Hospitality Management, 6*(3), 177-181.

Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of counseling psychology, 52*(2), 126.

Poortinga, W., Steg, L., & Vlek, C. (2002). Environmental risk concern and preferences for energy-saving measures. *Environment and behavior, 34*(4), 455-478.

Poortinga, W., Steg, L., & Vlek, C. (2004). Values, environmental concern, and environmental behavior a study into household energy use. *Environment and behavior, 36*(1), 70-93.

Powell, R. B., & Ham, S. H. (2008). Can ecotourism interpretation really lead to pro-conservation knowledge, attitudes and behaviour? Evidence from the Galapagos Islands. *Journal of Sustainable Tourism, 16*(4), 467-489.

Pradeep, J. (2012). Effect of environmental concern & social norms on environmental friendly behavioral intentions. *Business Intelligence Journal, 5*(1), 169-175.

Ramkissoon, H., Smith, L. D. G., & Weiler, B. (2013). Testing the dimensionality of place attachment and its relationships with place satisfaction and pro-environmental behaviours: A structural equation modelling approach. *Tourism Management, 36*, 552-566.

Rokeach, M. (1968). A Theory of Organization and Change Within Value‐Attitude Systems1. *Journal of Social Issues, 24*(1), 13-33.

Rokeach, M. (1973). *The nature of human values* (Vol. 438): Free press New York.

Rui, J. H., & Butcher, K. (2008). Do Chinese cultural values affect customer satisfaction/loyalty? *International Journal of Contemporary Hospitality Management, 20*(2), 156-171.

Ryan, C., & Huimin, G. (2009). *Tourism in China: Destination, cultures and communities*: Routledge.

Samarasinghe, R. (2012). The Influence of Cultural Values and Environmental Attitudes on Green Consumer Behaviour. *International Journal of Behavioral Science (IJBS), 7*(1).

Saphores, J.-D. M., Ogunseitan, O. A., & Shapiro, A. A. (2012). Willingness to engage in a pro-environmental behavior: an analysis of e-waste recycling based on a national survey of US households. *Resources, Conservation and Recycling, 60*, 49-63.

Sarantakos, S. (2005). *Social research* (Vol. 3rd). New York: Palgrave Macmillan.

Sarigöllü, E. (2009). A cross-country exploration of environmental attitudes. *Environment and behavior, 41*(3), 365-386.

Saunders, M., Thornhill, A., & Lewis, P. (2007). *Research methods for business students* (Vol. 4th). New York; Harlow, England: Financial Times/Prentice Hall.

Schahn, J. (2002). The role of behavioral costs and social desirability as predictors of environmental attitudes and conservation behavior: an analysis on aggregate and on individual data level. *Zeitschrift fur Differentielle und Diagnostische Psychologie, 23*(1), 45-54.

Schultz, P. W. (2000). Empathizing With Nature: The Effects of Perspective Taking on Concern for Environmental Issues. *Journal of Social Issues, 56*(3), 391.

Schultz, P. W., Gouveia, V. V., Cameron, L. D., Tankha, G., Schmuck, P., & Franěk, M. (2005). Values and their relationship to environmental concern and conservation behavior. *Journal of Cross-Cultural Psychology, 36*(4), 457-475.

Schultz, P. W., Shriver, C., Tabanico, J. J., & Khazian, A. M. (2004). Implicit connections with nature. *Journal of Environmental Psychology, 24*(1), 31-42.

Schultz, P. W., & Tabanico, J. (2007). Self, Identity, and the Natural Environment: Exploring Implicit Connections With Nature1. *Journal of Applied Social Psychology, 37*(6), 1219-1247.

Schultz, P. W., Unipan, J. B., & Gamba, R. J. (2000). Acculturation and ecological worldview among Latino Americans. *The journal of environmental education, 31*(2), 22-27.

Schultz, P. W., & Zelezny, L. (2003). Reframing environmental messages to be congruent with American values. *Human ecology review, 10*(2), 126-136.

Schwartz, S. H. (1977). Normative Influences on Altruism1. *Advances in experimental social psychology, 10*, 221-279.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in experimental social psychology, 25*(1), 1-65.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values? *Journal of Social Issues, 50*(4), 19-45.

Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology, 58*(5), 878.

Scott, D., & Willits, F. K. (1994). Environmental attitudes and behavior a Pennsylvania survey. *Environment and behavior, 26*(2), 239-260.

Scott, N., & Cooper, C. (2010). Innovation for sustainable urban tourism: some thoughts on best practice. *Revista de Administração Pública, 44*(5), 1171-1190.

Setbon, M., & Raude, J. (2010). Factors in vaccination intention against the pandemic influenza A/H1N1. *European journal of public health, 20*(5), 490-494.

Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). Why we buy what we buy: a theory of consumption values. *Journal of Business Research, 22*(2), 159-170.

Sievänen, T., Tervo, K., Neuvonen, M., Pouta, E., Saarinen, J., & Peltonen, A. (2005). *Nature-based tourism, outdoor recreation and adaptation to climate change. FINADAPT Working Paper 11*: Finnish Environment Institute.

Singh, N., & Gupta, K. (2013). Environmental attitude and ecological behaviour of Indian consumers. *Social Responsibility Journal, 9*(1), 4-18.

Singleton, R., & Straits, B. C. (2010). *Approaches to social research* (Vol. 5th). New York: Oxford University Press.

Slimak, M. W., & Dietz, T. (2006). Personal values, beliefs, and ecological risk perception. *Risk analysis, 26*(6), 1689-1705.

Smart, B., Peggs, K., & Burridge, J. (2013). *Observation methods*: SAGE Publications Inc.

Sniehotta, F. F., Presseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour: Taylor & Francis.

Sparks, B. (2007). Planning a wine tourism vacation? Factors that help to predict tourist behavioural intentions. *Tourism Management, 28*(5), 1180-1192.

Sparks, B., & Pan, G. W. (2009). Chinese outbound tourists: Understanding their attitudes, constraints and use of information sources. *Tourism Management, 30*(4), 483-494.

Steenhaut, S., & Van Kenhove, P. (2006). An empirical investigation of the relationships among a consumer's personal values, ethical ideology and ethical beliefs. *Journal of Business Ethics, 64*(2), 137-155.

Steg, L., Bolderdijk, J. W., Keizer, K., & Perlaviciute, G. (2014). An Integrated framework for encouraging pro-environmental behaviour: The role of values, situational factors and goals. *Journal of Environmental Psychology, 38*, 104-115.

Steg, L., De Groot, J. I., Dreijerink, L., Abrahamse, W., & Siero, F. (2011). General antecedents of personal norms, policy acceptability, and intentions: The role of values, worldviews, and environmental concern. *Society and Natural Resources, 24*(4), 349-367.

Steg, L., Perlaviciute, G., Van der Werff, E., & Lurvink, J. (2012). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and behavior*, 0013916512454730.

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology, 29*(3), 309-317.

Stern, P. C. (2000a). New environmental theories: toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*(3), 407-424.

Stern, P. C. (2000b). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues, 56*(3), 407-424.

Stern, P. C., & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues, 50*(3), 65-84.

Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human ecology review, 6*(2), 81-98.

Stern, P. C., Dietz, T., & Kalof, L. (1993). Value orientations, gender, and environmental concern. *Environment and behavior, 25*(5), 322-348.

Stevens, C. K. (2011). Questions to consider when selecting student samples. *Journal of Supply Chain Management, 47*(3), 19-21.

Sun, C., Su, S., & Huang, J. (2013). Cultural value, perceived value, and consumer decision-making style in China: A comparison based on an urbanization dimension. *Nankai Business Review International, 4*(3), 248-262.

Sutton, S. G., & Gyuris, E. (2015). Optimizing the environmental attitudes inventory. *International Journal of Sustainability in Higher Education, 16*(1), 16-33. doi: 10.1108/IJSHE-03-2013-0027

Takezawa, K. (2014). *Learning regression analysis by simulation*: Springer.

Tang, Y., & Tang, Y. (1991). *Confucianism, Buddhism, Daoism, Christianity and Chinese Culture*: Springer.

Tang, Z., Chen, X., & Luo, J. (2011). Determining Socio-Psychological Drivers for Rural Household Recycling Behavior in Developing Countries A Case Study From Wugan, Hunan, China. *Environment and behavior, 43*(6), 848-877.

Tangalooma Island Resort. (2018). Tangalooma Marine Education and conservation programs. 2018, from https://www.tangalooma.com/marine-education-conservation-centre

Tangeland, T. (2011). Why do people purchase nature-based tourism activity products? A Norwegian case study of outdoor recreation. *Scandinavian Journal of Hospitality and Tourism, 11*(4), 435-456.

Tao, P., Guoying, D., & Brody, S. (2009). PRELIMINARY STUDY OF A CHINESE LANGUAGE SHORT FORM OF THE MARLOWE–CROWNE SOCIAL DESIRABILITY SCALE1 1. *Psychological reports, 105*(3), 1039-1046.

Tarrant, M. A., & Green, G. T. (1999). Outdoor recreation and the predictive validity of environmental attitudes. *Leisure Sciences, 21*(1), 17-30.

Teisl, M. F., & O'Brien, K. (2003). Who cares and who acts? Outdoor recreationists exhibit different levels of environmental concern and behavior. *Environment and behavior, 35*(4), 506-522.

Testoni, L. (2001). Planning for sustainable tourism. *Pacific Tourism Review, 4*(4), 191-199.

Texas Parks & Wildlife. (2015). What is nature tourism. from https://tpwd.texas.gov/landwater/land/programs/tourism/what_is/

Thøgersen, J., & Ölander, F. (2003). Spillover of environment-friendly consumer behaviour. *Journal of Environmental Psychology, 23*(3), 225-236.

Thapa, B., Graefe, A. R., & Meyer, L. A. (2005). Moderator and mediator effects of scuba diving specialization on marine-based environmental knowledge-behavior contingency. *The journal of environmental education, 37*(1), 53-67.

The Queensland Government. (2013). Queensland Ecotourism Plan 2013-2020. Queensland.

The United Nations Enviornment Programme. (2016). Green Passport Rio 2016., from http://www.unep.org/stories/story/travel-rio-2016-green-passport-sustainable-tourism-safeguarding-brazil%E2%80%99s-environment

Theodori, G. L., Luloff, A., & Willits, F. K. (1998). The association of outdoor recreation and environmental concern: Reexamining the Dunlap-Heffernan thesis. *Rural Sociology, 63*, 94-108.

Thompson, L. F., Surface, E. A., Martin, D. L., & Sanders, M. G. (2003). From paper to pixels: Moving personnel surveys to the Web. *Personnel Psychology, 56*(1), 197-227.

Tonglet, M., Phillips, P. S., & Bates, M. P. (2004). Determining the drivers for householder pro-environmental behaviour: waste minimisation compared to recycling. *Resources, Conservation and Recycling, 42*(1), 27-48.

Tonglet, M., Phillips, P. S., & Read, A. D. (2004). Using the Theory of Planned Behaviour to investigate the determinants of recycling behaviour: a case study from Brixworth, UK. *Resources, Conservation and Recycling, 41*(3), 191-214.

Triandis, H. C. (2001). Individualism‐collectivism and personality. *Journal of personality, 69*(6), 907-924.

Trivedi, R. H., Patel, J. D., Savalia, J. R., Wright, G., & Harker, M. (2015). Pro-environmental behaviour, locus of control and willingness to pay for environmental friendly products. *Marketing Intelligence & Planning, 33*(1).

Truong, T. H., & King, B. (2009). An evaluation of satisfaction levels among Chinese tourists in Vietnam. *International Journal of Tourism Research, 11*(6), 521-535.

Tsang, N. K. (2011). Dimensions of Chinese culture values in relation to service provision in hospitality and tourism industry. *International Journal of Hospitality Management, 30*(3), 670-679.

Tucker, M. E., & Berthrong, J. (1998). Confucianism and Ecology: The Interrelation of Heaven. *Earth, and Human, Hayvard University Press*.

Tucker, P. (1999). Normative influences in household waste recycling. *Journal of Environmental Planning and Management, 42*(1), 63-82.

Tudor, T., Barr, S., & Gilg, A. (2007). Linking intended behaviour and actions: A case study of healthcare waste management in the Cornwall NHS. *Resources, Conservation and Recycling, 51*(1), 1-23.

Turaga, R. M. R., Howarth, R. B., & Borsuk, M. E. (2010). Pro-environmental behavior. *Annals of the New York Academy of Sciences, 1185*(1), 211-224. doi: 10.1111/j.1749-6632.2009.05163.x

United Nations. (2015). Sustainable tourism. from https://sustainabledevelopment.un.org/topics/sustainabletourism

United Nations Development Programme. (2018). What are the Sustainable Development Goals. 2018, from http://www.undp.org/content/undp/en/home/sustainable-development-goals.html

United Nations Environment Programme. (2005). *Making tourism more sustainable: a guide for policy makers*: World Tourism Organization Publications.

United Nations World Tourism Organization. (2007). A practical guide to tourism destination management. Madrid: UNWTO.

United Nations World Tourism Organization. (2013). UNWTO Annual Report 2012. Madrid.

United Nations World Tourism Organization. (2017). UNWTO Tourism Highlights (2017 ed.). Madrid: UNWTO.

Untaru, E., Epuran, G., & Ispas, A. (2014). A Conceptual Framework of Consumers' Pro-Environmental Attitudes and Behaviours in The Tourism Context. *thought, 20*(30), 35.

Uriely, N., Israeli, A. A., & Reichel, A. (2002). Heritage proximity and resident attitudes toward tourism development. *Annals of Tourism Research, 29*(3), 859-861.

Uskul, A. K., & Oyserman, D. (2006). Question comprehension and response: Implications of individualism and collectivism *National Culture and Groups* (pp. 173-201): Emerald Group Publishing Limited.

Vaisey, S., & Miles, A. (2014). Tools from moral psychology for measuring personal moral culture. *Theory and Society, 43*(3-4), 311-332.

Van Liere, K. D., & Noe, F. P. (1981). Outdoor recreation and environmental attitudes: further examination of the Dunlap-Heffernan thesis. *Rural Sociology, 46*(3), 505-513.

van Riper, C. J., & Kyle, G. T. (2014). Understanding the internal processes of behavioral engagement in a national park: A latent variable path analysis of the value-belief-norm theory. *Journal of Environmental Psychology, 38*, 288-297.

Vaske, J. J., & Donnelly, M. P. (1999). A value-attitude-behavior model predicting wildland preservation voting intentions. *Society & Natural Resources, 12*(6), 523-537.

Veal, A. J. (2011). *Research methods for leisure and tourism: a practical guide* (Vol. 4th). Harlow, Essex, England; England: Prentice Hall.

Vinson, D. E., Scott, J. E., & Lamont, L. M. (1977). The role of personal values in marketing and consumer behavior. *The Journal of Marketing*, 44-50.

Vogt, W. P., & Johnson, B. (2011). *Dictionary of statistics & methodology: A nontechnical guide for the social sciences*: Sage.

Vries, G., Terwel, B. W., Ellemers, N., & Daamen, D. D. (2015). Sustainability or profitability? How communicated motives for environmental policy affect public perceptions of corporate greenwashing. *Corporate Social Responsibility and Environmental Management, 22*(3), 142-154.

Waitt, G., & Harada, T. (2012). Driving, cities and changing climates. *Urban studies, 49*(15), 3307-3325.

Waley, A. (2005). *The analects of Confucius* (Vol. 28): Psychology Press.

Walker, K., & Moscardo, G. (2014). Encouraging sustainability beyond the tourist experience: ecotourism, interpretation and values. *Journal of Sustainable Tourism, 22*(8), 1175-1196.

Wang, S.-T. (2014). Consumer characteristics and social influence factors on green purchasing intentions. *Marketing Intelligence & Planning, 32*(7), 738-753.

Wang, Y., & Davidson, M. C. (2010). Chinese holiday makers' expenditure: Implications for marketing and management. *Journal of Hospitality Marketing & Management, 19*(4), 373-396.

Warren, C., & Coghlan, A. (2016). Using character strength-based activities to design pro-environmental behaviours into the tourist experience. *Anatolia, 27*(4), 480-492.

Warriner, G. K., McDougall, G. H., & Claxton, J. D. (1984). Any data or none at all? Living with inaccuracies in self-reports of residential energy consumption. *Environment and behavior, 16*(4), 503-526.

Watkins, L., & Gnoth, J. (2005). Methodological issues in using Kahle's list of values scale for Japanese tourism behaviour. *Journal of Vacation Marketing, 11*(3), 225-233.

Watson, J., Lysonski, S., Gillan, T., & Raymore, L. (2002). Cultural values and important possessions: a cross-cultural analysis. *Journal of Business Research, 55*(11), 923-931.

Wearing, S., Cynn, S., Ponting, J., & McDonald, M. (2002). Converting environmental concern into ecotourism purchases: A qualitative evaluation of international backpackers in Australia. *Journal of Ecotourism, 1*(2-3), 133-148.

Weaver, D. B. (2005). Mass and Urban Ecotourism: New Manifestions of an Old Concept. *Tourism Recreation Research, 30*(1), 19-26.

Weaver, D. B., & Lawton, L. J. (2007). Twenty years on: The state of contemporary ecotourism research. *Tourism Management, 28*(5), 1168-1179.

Weigel, R., & Weigel, J. (1978). Environmental concern the development of a measure. *Environment and behavior, 10*(1), 3-15.

Whitmarsh, L., & O'Neill, S. (2010). Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours. *Journal of Environmental Psychology, 30*(3), 305-314.

Williams, R. M. (1979). Change and stability in values and value systems: A sociological perspective. *Understanding human values: Individual and societal, 1*, 5-46.

Wiseman, M., & Bogner, F. X. (2003). A higher-order model of ecological values and its relationship to personality. *Personality and Individual Differences, 34*(5), 783-794.

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of computer-mediated communication, 10*(3), JCMC1034.

Wynveen, C. J., Wynveen, B. J., & Sutton, S. G. (2015). Applying the Value-Belief-Norm Theory to Marine Contexts: Implications for Encouraging Pro-Environmental Behavior. *Coastal Management, 43*(1), 84-103.

Xiao, G., & Kim, J. O. (2009). The investigation of Chinese consumer values, consumption values, life satisfaction, and consumption behaviors. *Psychology & Marketing, 26*(7), 610-624.

Yang, X., Reeh, T., & Kreisel, W. (2011). Cross-Cultural Perspectives on Promoting Festival Tourism—An Examination of Motives and Perceptions of Chinese Visitors Attending the Oktoberfest in Munich (Germany) 从跨文化角度了解节日旅游推广—探讨中国游客参加德国慕尼黑啤酒节的动机与感知. *Journal of China Tourism Research, 7*(4), 377-395.

Yau, O. H. (1988). Chinese cultural values: Their dimensions and marketing implications. *European journal of Marketing, 22*(5), 44-57.

Yau, O. H. (1994). *Consumer behaviour in China: Customer satisfaction and cultural values*: Routledge.

Yin, J. (1999). Elite Opinion and Media Diffusion Exploring Environmental Attitudes. *The Harvard International Journal of Press/Politics, 4*(3), 62-86.

Yung, Y., Chan, W., Cheung, F. M., Leung, K., Law, J. S., & Zhang, J. X. (2000). Standardization of the Chinese Personality Assessment Inventory: The prototype standardization method and its rationale. *Asian Journal of Social Psychology, 3*(2), 133-152.

Zeppel, H. (2012). Climate change and tourism in the Great Barrier Reef Marine Park. *Current Issues in Tourism, 15*(3), 287-292.

Zhai, X. (2010). *Perspectives on Chinese face: Psychological motives and social representations*. Beijing: Peking University Press.

Zhang, M. (2005a). A Comparative Study of Sino-Western Cultural Values on the Impacts of Consumer Purchasing Behavior. *Economic management, 8*, 4-11.

Zhang, M. (2005b). Cultural Values Based on Confucianism and Symbolic Purchase Behavior: Conceptual Refinement, Measures, Model and Marketing Strategic Suggestions.

Zhang, M., Chebat, J.-C., & Zourrig, H. (2012). Assessing the psychometric properties of Hofstede's versus Schwartz's cultural values of Chinese customers. *Journal of International Consumer Marketing, 24*(5), 304-319.

Zhang, Y., Zhang, H., Zhang, J., & Cheng, S. (2014). Predicting residents' pro-environmental behaviors at tourist sites: The role of awareness of disaster's consequences, values, and place attachment. *Journal of Environmental Psychology, 40*, 131-146.

Zhang, Y., Zhang, J., Zhang, H., Cheng, S., Guo, Y., Ma, J., & Sun, J. (2015). The impact of the cognition of landscape experience on tourist environmental conservation behaviors. *Journal of Mountain Science, 12*(2), 501-517.

Zhou, Z. (2011). Environmental Protection, Group Pressure or Interests Relatedness. *Chinese Journal of Sociology, 1*(31), 1-34.

Zografos, C., & Allcroft, D. (2007). The environmental values of potential ecotourists: A segmentation study. *Journal of Sustainable Tourism, 15*(1), 44-66.

Appendices

Appendix 1: Rokeach Value Survey

No.	Instrumental values	Terminal values
1.	Ambitious (hard-working, aspiring)	A comfortable life (a prosperous life)
2.	Broad-minded (open-minded)	An exciting life (a stimulating, active life)
3.	Capable (competent, effective)	A sense of accomplishment (lasting contribution)
4.	Cheerful (light-hearted, joyful)	The world at peace (free from war and conflict)
5.	Clean (neat, tidy)	A world of beauty (beauty of nature and the arts)
6.	Courageous (standing up for your beliefs)	Equality (brotherhood, equal opportunity for all)
7.	Forgiving (willing to pardon others)	Family security (taking care of loved ones)
8.	Helpful (working for the welfare of others)	Freedom (independence, free choice)
9.	Honest (sincere, truthful)	Happiness (contentedness)
10.	Imaginative (daring, creative)	Inner harmony (freedom from inner conflict)
11.	Independent (self-reliant, self-sufficient)	Mature love (sexual and spiritual intimacy)
12.	Intellectual (intelligent, reflective)	National security (protection from attack)
13.	Logical (consistent, rational)	Pleasure (an enjoyable, leisurely life)
14.	Loving (affectionate, tender)	Salvation (saved, eternal life)
15.	Obedient (dutiful, respectful)	Self-respect (self-esteem)
16.	Polite (courteous, well mannered)	Social recognition (respect, admiration)
17.	Responsible (dependable, reliable)	True friendship (close companionship)
18.	Self-controlled (restrained, self-disciplined)	Wisdom (a mature understanding of life)

(Source: adapted from Rokeach, 1973)

Appendix 2: Schwartz' Values Inventory

Value	Related concepts
Universalism	Understanding, appreciation, tolerance and protection of all people and nature
Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact
Conformity	Restraint of actions, inclinations and impulses likely to upset others and violate social expectations or norms
Tradition	Respect, commitment and acceptance of the customs or ideas that traditional culture or religion provides
Security	Safety, harmony and stability of society, of relationships and of the self
Power	Social status and prestige, control or dominance over people and resources
Achievement	Personal success through demonstrating competence
Hedonism	Pleasure and sensuous gratification
Stimulation	Excitement, novelty and challenge in life
Self-direction	Independent thought and action; choosing, creating, exploring

(Adapted from Vaisey & Miles, 2014)

Appendix 3: Chinese Culture Connection's Value Survey

1. Filial Piety	21. Sincerity
2. Industry (working hard)	22. Keeping oneself disinterested and pure
3. Tolerance of others	23. Thrift
4. Harmony with others	24. Persistence (perseverance)
5. Humbleness	25. Patience
6. Loyalty to superiors	26. Repayment of both the good or the evil that another person has caused
7. Observation of rites and social rituals	27. A sense of cultural superiority
8. Reciprocation of greetings, favours, and gifts	28. Adaptability
9. Kindness (forgiveness, compassion)	29. Prudence (carefulness)
10. Knowledge (education)	30. Trustworthiness
11. Solidarity with others	31. Having a sense of shame
12. Moderation – following the middle way	32. Courtesy
13. Self-cultivation	33. Contentedness with one's position in life
14. Ordering relationships by status and observing this order	34. Bing conservative
15. Sense of righteousness	35. Protecting you 'face'
16. Benevolent authority	36. A lose, intimate friend
17. Non-competitiveness	37. Chastity in women
18. Personal steadiness and stability	38. Having few desires
19. Resistance to corruption	39. Respect for tradition
20. Patriotism	40. Wealth

(Source: adapted from Chinese Culture Connection, 1987)

Appendix 4: Zhang's Value Survey

Confucianism Cultural Values	
Factor 1 Fitness of behaviour and identity	● An individual's consumption level should be consistent with their social status. ● An individual's daily behaviour should consistent with their social status. ● An individual's choice of clothing should consistent with their social status.
Factor 2 Family reputation	● I prefer to purchase luxury products when I am shopping with wealthier friends. ● I try to avoid purchasing discounted products in front of my colleagues. ● A woman should wear makeup to please her husband.
Factor 3 Listen to others	● Modesty moves one forward, whereas conceit moves one backwards. ● The advice of my mentors is very important to me. ● I would describe myself as a self-disciplined individual.
Daoism Cultural Values	
Factor 1 Nature admiring	● I admire natural beauty. ● My ideal living place is one that looks like a landscape painting. ● I prefer purchasing green food.
Factor 2 Harmony with nature	● 'Let it be' is the best motto in life. ● Harmony will be achieved spontaneously if everything evolves naturally.
Buddhism Cultural Values	
Factor 1 Karma	● As a man sows, so he shall reap. ● If you are kind in life, you will be rewarded in a future world. ● Nothing is given without a disadvantage in it. ● Lies will be exposed.
Factor 2 Luxury useless	● Luxury goods are useless. ● I rarely purchase luxury products, as the price is often inconsistent with their quality.
Factor 3 Believe in fate	● I believe in fate. ● Every encounter with someone is the result of fate.

(Source: Zhang, 2005a)

Appendix 5: Yau's Value Survey

Man-nature orientation	Contentedness with and acceptance of who you are
	Having few desires
	Leave everything to fate
	Non-competitiveness
Human nature orientation	Courtesy
	Humility (Humbleness)
	Practical approach to things
	Adaptability to different situations
Relational orientation	Loyalty to the person or people you work for
	Respect for seniority
	Trust in the advice of experts
	Observation of social rituals and obligations
	Reciprocation of greetings, favours, and gifts
	Repayment of the good that another person has caused you
	Belief that what you do now will have future consequences
	Revenge
	Having a sense of shame
	Having a clear conscience
	Protecting your public image
	Protecting your reputation
	Solidarity with others
	Filial piety
Time orientation	Respect for tradition
	Maintaining the status quo
	Patience
	Perseverance (Persistence)
Activity orientation	Moderation in all things
	Seeking a happy medium or satisfactory compromise in resolving conflicts
	Kindness and compassion for others
	Tolerance and understanding of others

(Source: Yau, 1988)

Appendix 6: Hsu and Huang's Value Survey

Cultural values		
Instrumental Values: Desired Character Traits	**Terminal Values: Life Pursuits**	**Interpersonal Values**
Confidence	Convenience	Collectivism
Competitiveness and competence	Easy and comfortable	Compromise
Respect for legal practices	Fame and fortune	Conformity
Being considerate of others	Fashion	Devotion to children
Complacency	Indulgence	Family orientation/kinship
Courtesy and morality	Leisure	Filial piety
Down-to-earth	Liberation	Friendship
Honesty	Live in the moment	Harmony
Industry (working hard)	Ostentation	
Kindness	Quality of life	
Moderation	Self-interest	
Planning	Worship foreign cultures	
Respect for history	Health	
Self-discipline	Horizon broadening/Novelty	
Sense of obligation	Knowledge and education	
Thrift	Stability and security	

Note: The shaded cells denote modern values; the rest are traditional values.

(Source: Hsu & Huang, 2016)

Appendix 7: Environmental Concern Scale

(Measured on a 5-point Likert-type scale: 1 = strongly disagree, 5 = strongly agree)

1. The federal government will have to introduce harsh measures to halt pollution since few people will regulate themselves.
2. We should not worry about killing too many game animals because in the long run things will balance out.*
3. I'd be willing to make personal sacrifices for the sake of slowing down pollution even through the immediate results may not seem significant.
4. Pollution is not personally affecting my life.*
5. The benefits of modern consumer products are more important than the pollution that results from their production and use.*
6. We must prevent any type of animal from becoming extinct, even if it means sacrificing some things for ourselves.
7. Courses focusing on the conservation of natural resources should be taught in the public schools.
8. Although there is continual contamination of our lakes, streams and air, nature's purifying processes soon return them to normal.*
9. Because the government has such good inspection and control agencies, it's very unlikely that pollution due to energy production will become excessive. *
10. The government should provide each citizen with a list of agencies and organisations to which citizens could report grievances concerning pollution.
11. Predators such as hawks, crows, skunks and coyotes which prey on farmer's grain crops and poultry should be eliminated.*
12. The currently active anti-pollution organisations are really more interested in disrupting society, than they are in fighting pollution.*
13. Even if public transportation was more efficient than it is, I would prefer to drive my car to work.*
14. Industry is trying its best to develop effective anti-pollution technology.*
15. If asked, I would contribute time, money, or both to an organisation like the Sierra Club that works to improve the quality of the environment.
16. I would be willing to accept an increase in my family's expenses of $100 next year to promote the wise use of natural resources.

Note. *=reversed coded items.

(Source: Weigel & Weigel, 1978)

Appendix 8: New Environmental Paradigm (NEP) and Revised NEP

(Measured on a 5-point Likert-type scale: 1 = strongly disagree, 5 = strongly agree)

NEP Items	Revised NEP Items
1. We are approaching the limit of the number of people the earth can support.	1. We are approaching the limit of the number of people the earth can support.
2. The balance of nature is very delicate and easily upset.	2. Humans have the right to modify the natural environment to suit their needs.
3. Humans have the right to modify the natural environment to suit their needs.	3. When humans interfere with nature it often produces disastrous consequences.
4. Mankind was created to rule over the rest of nature.	4. Human ingenuity will ensure that we do NOT make the earth unliveable.
5. When humans interfere with nature it often produces disastrous consequences.	5. Humans are severely abusing the environment.
6. Plants and animals exist primarily to be used by humans.	6. The earth has plenty of natural resources if we just learn how to develop them.
7. To maintain a healthy economy we will have to develop a "steady-state" economy where industrial growth is controlled.	7. Plants and animals have as much right as humans to exist.
8. Humans must live in harmony with nature in order to survive.	8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9. The earth is like a spaceship with only limited room and resources.	9. Despite our special abilities humans are still subject to the laws of nature.
10. Humans need not adapt to the natural environment because they can remake it to suit their needs.	10. The so-called ecological crisis facing humankind has been greatly exaggerated.
11. There are limits to growth beyond which our industrialised society cannot expand.	11. The earth is like a spaceship with very limited room and resources.
12. Mankind is severely abusing the environment.	12. Humans were meant to rule over the rest of nature.
	13. The balance of nature is very delicate and easily upset.
	14. Humans will eventually learn enough about how nature works to be able to control it.
	15. If things continue on their present course, we will soon experience a major ecological catastrophe.

(Source: adapted from Dunlap & Liere, 1978; Dunlap et al., 2000)

Appendix 9: Chinese version Revised NEP

(Measured on a 5-point Likert-type scale: 1 = strongly disagree, 5 = strongly agree)

1	We are approaching the limit of the number of people the earth can support.	
2	Humans have the right to modify the natural environment to suit their needs.	(reverse)
3	When humans interfere with nature it often produces disastrous consequences.	
4	Humans are severely abusing the environment.	
5	The earth has plenty of natural resources if we just learn how to develop them.	(reverse)
6	Plants and animals have as much right as humans to exist.	
7	The balance of nature is strong enough to cope with the impacts of modern industrial nations.	(reverse)
8	Despite our special abilities humans are still subject to the laws of nature.	
9	The so-called ecological crisis facing humankind has been greatly exaggerated.	(reverse)
10	The earth is like a spaceship with very limited room and resources.	
11	Humans were meant to rule over the rest of nature.	(reverse)
12	The balance of nature is very delicate and easily upset.	
13	If things continue on their present course, we will soon experience a major ecological catastrophe.	

(Source: adapted from Hong, 2006)

Appendix 10: Environmental Attitude Inventory (EAI)

(Measured on a 7-point Likert-type scale: 1 = strongly disagree, 7 = strongly agree)

Environmental Attitude Inventory (EAI)
Scale 01. Enjoyment of nature
01. I really like going on trips into the countryside; for example, to forests or fields.
02. I think spending time in nature is boring. (R)
Scale 02. Support for Interventionist conservation policies
01. Governments should control the rate at which raw materials are used to ensure that they last as long as possible.
02. I am opposed to governments controlling and regulating the way raw materials are used in order to try and make them last longer. (R)
Scale 03. Environmental movement activism
01. I would like to join and actively participate in an environmentalist group.
02. I would NOT get involved in an environmentalist organisation. (R)
Scale 04. Conservation motivated by anthropocentric concern
01. One of the most important reasons to keep lakes and rivers clean is so that people have a place to enjoy water sports.
02. We need to keep rivers and lakes clean in order to protect the environment and NOT as places for people to enjoy water sports. (R)
Scale 05. Confidence in science and technology
01. Modern science will NOT be able to solve our environmental problems. (R)
02. Modern science will solve our environmental problems.
Scale 06. Environmental threat
01. Humans are severely abusing the environment.
02. I do not believe that the environment has been severely abused by humans. (R)
Scale 07. Altering nature
01. I'd prefer a garden that is wild and natural to a well-groomed and ordered one. (R)
02. I'd much prefer a garden that is well groomed and ordered to a wild and natural one.
Scale 08. Personal conservation behaviour
01. I am NOT the kind of person who makes efforts to conserve natural resources. (R)
02. Whenever possible, I try to save natural resources.
Scale 09. Human dominance over nature
01. Human beings were created or evolved to dominate the rest of nature.
02. I DO NOT believe humans were created or evolved to dominate the rest of nature. (R)
Scale 10. Human utilisation of nature
01. Protecting peoples' jobs is more important than protecting the environment.
02. Protecting the environment is more important than protecting people' jobs. (R)
Scale 11. Ecocentric concern
01. It makes me sad to see forests cleared for agriculture.
02. It does NOT make me sad to see natural environments destroyed. (R)
Scale 12. Support for population growth policies
01. Families should be encouraged to limit themselves to two children or less.
02. A married couple should have as many children as they wish, as long as they can adequately provide for them. (R)

Note. R=reversed coded items

(Source: Milfont & Duckitt, 2010)

Appendix 11: Pilot Study Preliminary Survey

(English version)

CHINESE CULTURAL VALUES AND ENVIRONMENTAL BEHAVIOURS SURVEY

Please answer the questionnaire as honest as you can. Please mark your answers by filling the circles like this: ●

SECTION 1: CHINESE CULTURAL VALUES

1. Please indicate to what exent you agree or disagree with the following statements: 1=strongly disagree; 7=strongly agree.

	STRONGLY DISAGREE						STRONGLY AGREE
An individual's consumption level should be consistent with their social status[2]	○	○	○	○	○	○	○
An individual's daily behaviour should consistent with their social status[2]	○	○	○	○	○	○	○
An individual's choice of clothing should consistent with their social status[2]	○	○	○	○	○	○	○
I prefer to purchase luxury products when I am shopping with wealthier friends[2]	○	○	○	○	○	○	○
I try to avoid purchasing discounted products in front of my colleagues[2]	○	○	○	○	○	○	○
A woman should wear makeup to please her husband[2]	○	○	○	○	○	○	○
Modesty moves one forward, whereas conceit moves one backwards[2]	○	○	○	○	○	○	○
The advice of my mentors is very important to me[2]	○	○	○	○	○	○	○
I would describe myself as a self-disciplined individual[2]	○	○	○	○	○	○	○
I admire natural beauty[2]	○	○	○	○	○	○	○
My ideal living place is one that looks like a landscape painting[2]	○	○	○	○	○	○	○

	STRONGLY DISAGREE						STRONGLY AGREE
I prefer purchasing green food[2]	○	○	○	○	○	○	○
'Let it be' is the best motto in life[2]	○	○	○	○	○	○	○
Harmony will be achieved spontaneously if everything evolves naturally[2]	○	○	○	○	○	○	○
As a man sows, so he shall reap[2]	○	○	○	○	○	○	○
If you are kind in life, you will be rewarded in a future world[2]	○	○	○	○	○	○	○
Nothing is given without a disadvantage in it[2]	○	○	○	○	○	○	○
Lies will always be exposed[2]	○	○	○	○	○	○	○
Luxury goods are useless[2]	○	○	○	○	○	○	○
I rarely purchase luxury products, as the price is often inconsistent with their quality[2]	○	○	○	○	○	○	○
I believe in fate[2]	○	○	○	○	○	○	○
Every encounter with someone is the result of fate[2]	○	○	○	○	○	○	○

2. Please rate the importance of the following as a guiding principle in your life: 1=not at all important; 7=extremely important.

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Leave everything to fate[3]	○	○	○	○	○	○	○
Loyalty to the person or people you work for[1,3]	○	○	○	○	○	○	○
Kindness and compassion for others[1,3,4]	○	○	○	○	○	○	○
Protecting your public image (face) [1,3]	○	○	○	○	○	○	○
Observation of social rituals and obligations[1,3]	○	○	○	○	○	○	○
Moderation in all things[1,3,4]	○	○	○	○	○	○	○
Courtesy[1,3,4]	○	○	○	○	○	○	○
Contentedness with and acceptance of who you are[1,3]	○	○	○	○	○	○	○
Having a sense of shame[1,3]	○	○	○	○	○	○	○
Respect for tradition (history)[1,3,4]	○	○	○	○	○	○	○
	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Solidarity with others (collectivism) [1,3,4]	○	○	○	○	○	○	○
Patience[1,3]	○	○	○	○	○	○	○
Practical approach to things[3]	○	○	○	○	○	○	○
Repayment of the good that another person has caused you[3]	○	○	○	○	○	○	○
Adaptability to different situations[1,3]	○	○	○	○	○	○	○
Reciprocation of greetings, favours and gifts[1,3]	○	○	○	○	○	○	○
Having a clear conscience[3]	○	○	○	○	○	○	○
Tolerance and understanding of others (being consideration of others) [1,3,4]	○	○	○	○	○	○	○
Maintaining the status quo (Complacency)[3,4]	○	○	○	○	○	○	○
Respect for seniority[3]	○	○	○	○	○	○	○
	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Seeking a happy medium or satisfactory compromise in resolving conflicts[3]	○	○	○	○	○	○	○
Protecting your reputation[3]	○	○	○	○	○	○	○
Having few desires[1,3]	○	○	○	○	○	○	○
Belief that what you do now will have future consequences[3]	○	○	○	○	○	○	○
Perseverance (Persistence) [1,3]	○	○	○	○	○	○	○
Non-competitiveness[1,3,-4]	○	○	○	○	○	○	○
Humility (Humbleness) [1,3]	○	○	○	○	○	○	○
Trust in the advice of experts[3]	○	○	○	○	○	○	○
Revenge[3]	○	○	○	○	○	○	○
Filial piety (i.e., Respect and take care of one's parents and elderly people)[1,3,4]	○	○	○	○	○	○	○
	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT

3. Please rate the importance of the following as a guiding principle in your life: 1 = not at all important; 7 = extremely important.

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Working hard[1,4]	○	○	○	○	○	○	○
Harmony with others[1,4]	○	○	○	○	○	○	○
Knowledge (Education) [1,4]	○	○	○	○	○	○	○
Self-cultivation (self-discipline) [1,4]	○	○	○	○	○	○	○
Ordering relationships by status and observing this order[1]	○	○	○	○	○	○	○
Sense of righteousness[1]	○	○	○	○	○	○	○
Benevolent authority[1]	○	○	○	○	○	○	○
Personal steadiness and stability (stability and security) [1,4]	○	○	○	○	○	○	○
Resistance to corruption [1]	○	○	○	○	○	○	○
Patriotism[1]	○	○	○	○	○	○	○
	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Sincerity[1]	○	○	○	○	○	○	○
Keeping oneself disinterested and pure[1]	○	○	○	○	○	○	○
Thrift[1,4]	○	○	○	○	○	○	○
Repayment of both the good and the evil that another person has caused you[1]	○	○	○	○	○	○	○
A sense of cultural superiority[1]	○	○	○	○	○	○	○
Prudence (Carefulness) [1]	○	○	○	○	○	○	○
Trustworthiness (Honesty) [1,4]	○	○	○	○	○	○	○
Being conservative[1]	○	○	○	○	○	○	○
A close, intimate friend (friendship) [1,4]	○	○	○	○	○	○	○
Chastity in women[1]	○	○	○	○	○	○	○
Wealth[1]	○	○	○	○	○	○	○
	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Confidence[4]	○	○	○	○	○	○	○
Respect for legal practice[4]	○	○	○	○	○	○	○
Down-to-earth[4]	○	○	○	○	○	○	○
Planning[4]	○	○	○	○	○	○	○
Sense of obligation[4]	○	○	○	○	○	○	○
Convenience[4]	○	○	○	○	○	○	○
Easy and comfortable[4]	○	○	○	○	○	○	○
Fame and fortune[4]	○	○	○	○	○	○	○
Fashion[4]	○	○	○	○	○	○	○
Indulgence[4]	○	○	○	○	○	○	○
	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Leisure[4]	○	○	○	○	○	○	○
Liberation[4]	○	○	○	○	○	○	○
Live in the moment[4]	○	○	○	○	○	○	○
Ostentation[4]	○	○	○	○	○	○	○
Quality of life[4]	○	○	○	○	○	○	○
Self-interest[4]	○	○	○	○	○	○	○
Worship foreign cultures[4]	○	○	○	○	○	○	○
Health[4]	○	○	○	○	○	○	○
Horizon broadening/Novelty[4]	○	○	○	○	○	○	○
Compromise[4]	○	○	○	○	○	○	○
Conformity[4]	○	○	○	○	○	○	○
Devotion to children[4]	○	○	○	○	○	○	○
Family orientation/Kinship[4]	○	○	○	○	○	○	○
	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT

Note: 1=Chinese Culture Connection's value item, 2= Zhang's values item, 3=Yau's value item, 4=Hsu and Huang's value item

SECTION 2: ABOUT YOU

4. Please tell us, are you:

   ○ Female
   ○ Male

5. In what year were you born? .....

6. What is your nationality? .....

7. What cultural background do you identify with (e.g., Chinese culture, Australian culture)? .....

8. What is your home city in China (if you are from China)? .....

10. What is your occupation? (*For Qualtrics participants only*):

   ○ Student
   ○ Employed for wages
   ○ Self-employed
   ○ Educator
   ○ Government and Public Administrator
   ○ Unemployed
   ○ Retired
   ○ Others

(Chinese version)

中国文化价值观和
环境行为调查

请诚实地填写以下问卷

请填涂你的答案，例如：●

第一部分：中国文化价值观

1. 请指出你在哪种程度上同意或不同意以下观点作为你人生的指导原则，由 1=完全不同意，至 7=完全同意。

	完全不同意						完全同意
人的消费行为应该与其社会地位相符	○	○	○	○	○	○	○
人的所作所为应该与其社会地位相符	○	○	○	○	○	○	○
人的着装应该与其社会地位相符	○	○	○	○	○	○	○
与比我有钱的朋友逛商店时，我选择高档商品	○	○	○	○	○	○	○
我注意避免在单位同事面前购买降价商品	○	○	○	○	○	○	○
女人化妆的目的通常是为了取悦丈夫	○	○	○	○	○	○	○
虚心使人进步，骄傲使人落后	○	○	○	○	○	○	○
老师的话对我是很重要的	○	○	○	○	○	○	○
我对自己是一个自律的人而感到高兴	○	○	○	○	○	○	○
我崇尚自然美	○	○	○	○	○	○	○
理想的生活场所是，那里的景色和气氛就如同一幅山水画	○	○	○	○	○	○	○
	完全不同意						完全同意

	完全不同意						完全同意
我偏爱消费绿色食品	○	○	○	○	○	○	○
会生活就是让一切顺其自然	○	○	○	○	○	○	○
如果事物以其本来的节奏变化，万物和谐就会自然实现	○	○	○	○	○	○	○
种瓜得瓜，种豆得豆	○	○	○	○	○	○	○
善待生灵，来世有好报	○	○	○	○	○	○	○
有得必有失	○	○	○	○	○	○	○
谎言终将被揭穿	○	○	○	○	○	○	○
奢侈品是无用的	○	○	○	○	○	○	○
我基本不买高档商品，因为其价不符实	○	○	○	○	○	○	○
我相信存在缘分	○	○	○	○	○	○	○
与某人的偶遇是一种缘分	○	○	○	○	○	○	○
	完全不同意						完全同意

2. 请评估以下每一项作为你人生指导原则的重要性，由 1=完全不重要，至 7=十分重要。

	完全不重要						十分重要
听天由命	○	○	○	○	○	○	○
忠于上司	○	○	○	○	○	○	○
富同情心	○	○	○	○	○	○	○
要面子	○	○	○	○	○	○	○
礼仪	○	○	○	○	○	○	○
中庸之道	○	○	○	○	○	○	○
有礼貌	○	○	○	○	○	○	○
安分守己	○	○	○	○	○	○	○
知耻	○	○	○	○	○	○	○
尊敬传统	○	○	○	○	○	○	○
	完全不重要						十分重要

	完全不重要						十分重要
团结	○	○	○	○	○	○	○
耐心	○	○	○	○	○	○	○
实际	○	○	○	○	○	○	○
有恩必报	○	○	○	○	○	○	○
适应环境	○	○	○	○	○	○	○
礼尚往来	○	○	○	○	○	○	○
无愧于心	○	○	○	○	○	○	○
容忍及谅解别人	○	○	○	○	○	○	○
保持现状	○	○	○	○	○	○	○
尊重权威	○	○	○	○	○	○	○
	完全不重要						十分重要

	完全不重要						十分重要
寻求共识解决纷争	○	○	○	○	○	○	○
顾存名誉	○	○	○	○	○	○	○
寡欲	○	○	○	○	○	○	○
相信因果报应	○	○	○	○	○	○	○
毅力	○	○	○	○	○	○	○
不重竞争	○	○	○	○	○	○	○
谦虚	○	○	○	○	○	○	○
信任专家意见	○	○	○	○	○	○	○
有仇必报	○	○	○	○	○	○	○
孝顺	○	○	○	○	○	○	○
	完全不重要						十分重要

3. 请评估以下每一项作为你人生指导原则的重要性，由 1=完全不重要，至 7=十分重要。

	完全不重要						十分重要
勤劳	○	○	○	○	○	○	○
随和	○	○	○	○	○	○	○
知识	○	○	○	○	○	○	○
修养	○	○	○	○	○	○	○
尊卑有序	○	○	○	○	○	○	○
正义感	○	○	○	○	○	○	○
恩威并施	○	○	○	○	○	○	○
稳重	○	○	○	○	○	○	○
廉洁	○	○	○	○	○	○	○
爱国	○	○	○	○	○	○	○
	完全不重要						十分重要

	完全不重要						十分重要
诚恳	○	○	○	○	○	○	○
清高	○	○	○	○	○	○	○
节俭	○	○	○	○	○	○	○
报恩与报仇	○	○	○	○	○	○	○
文化优越感	○	○	○	○	○	○	○
小心谨慎	○	○	○	○	○	○	○
信用	○	○	○	○	○	○	○
保守	○	○	○	○	○	○	○
知己之交	○	○	○	○	○	○	○
贞洁	○	○	○	○	○	○	○
财富	○	○	○	○	○	○	○
	完全不重要						十分重要

	完全不重要						十分重要
乐观自信	○	○	○	○	○	○	○
遵纪守法	○	○	○	○	○	○	○
务实	○	○	○	○	○	○	○
规划	○	○	○	○	○	○	○
责任感	○	○	○	○	○	○	○
便利	○	○	○	○	○	○	○
安逸	○	○	○	○	○	○	○
名利	○	○	○	○	○	○	○
时尚	○	○	○	○	○	○	○
享乐	○	○	○	○	○	○	○
	完全不重要						十分重要

	完全不重要						十分重要
休闲	○	○	○	○	○	○	○
个性	○	○	○	○	○	○	○
活在当下	○	○	○	○	○	○	○
攀比	○	○	○	○	○	○	○
生活品质	○	○	○	○	○	○	○
私利	○	○	○	○	○	○	○
崇洋	○	○	○	○	○	○	○
健康	○	○	○	○	○	○	○
开阔视野	○	○	○	○	○	○	○
妥协	○	○	○	○	○	○	○
从众	○	○	○	○	○	○	○
望子成龙	○	○	○	○	○	○	○
亲情	○	○	○	○	○	○	○
	完全不重要						十分重要

第二部分：关于你

4. 请告诉我你的性别是：
   - ○ 女性
   - ○ 男性
5. 你是哪一年出生的？ .....
6. 你的国籍是什么? .....
7. 你自认为属于哪个文化背景（例如，中国文化，澳洲文化）？ .....
8. 你来自中国哪个城市（如果你是来自中国的话）? .....
9. 你的职业是什么? (*只有 Qualtrics 参与者需要作答*):
   - ○ 学生
   - ○ 公司职员
   - ○ 自主创业
   - ○ 教育工作者
   - ○ 政府工作人员
   - ○ 无业
   - ○ 退休
   - ○ 其他

Appendix 12: Participant Information Sheet

Participant Information Sheet (English version)

You are being asked to participate in a study examining cultural values, environmental attitudes and environmental behaviours. In this study, you will be asked to complete a questionnaire. The questionnaire should take about **15 minutes** to complete.

Your participation is **completely voluntary**. You are entitled to withdraw from the project at any time by leaving the survey venue or submitting a blank survey and without providing a reason and without penalty. Your data will be destroyed should you choose to withdraw.

Data collected via the questionnaire will **remain anonymous** and will be used in my PhD thesis. Records of my research will be kept securely on a password-protected file of the primary researcher for the duration of the study and then handed to one of two supervisors for storage in a locked file at the University of Queensland.

This study adheres to the Guidelines of the ethical review process of The University of Queensland. Whilst you are free to discuss your participation in this study with Associate Professor Pierre Benckendorff (contactable on (07) 3346 7089 or p.benckendorff@uq.edu.au) or Dr Karen Hughes (contactable on (07) 3340564 or k.hughes2@uq.edu.au), if you would like to speak to an officer of the University not involved in the study, you may contact the Ethics Officer on (07) 3365 3924.

受访者知情声明 (Chinese version)

你被邀请参加一个关于文化价值观，环境态度以及环境行为的研究。在此阶段的研究中，请你完成以下问卷。问卷大概需要 **15 分钟**左右完成。

你的参与是**完全自愿**的，并且你可以在任何时间退出此次问卷调查。离开或上交空白问卷即可，并且不需要提供任何理由，同时也不会受到任何惩罚。如果你中途退出此次问卷调查，你所填写的所有数据将被销毁。

此次问卷调查中，所有的数据收集都是**匿名的**。因此，受访者的个人身份将不会被识别。另外，此次研究收集的所有数据将被匿名保存并仅用于我的博士论文。在整个研究过程中，所有的研究记录也将被保存在一个加密的文件夹中。之后，会被上交给其中一位导师，存储在昆士兰大学的上锁文件夹中。

此次研究完全遵守昆士兰大学道德审查标准。如有任何疑问，请联系副教授 Pierre Benckendorff (联系方式 (07) 3346 7089 或 p.benckendorff@uq.edu.au) 或者讲师 Karen Hughes (联系方式 (07) 3340564 或 k.hughes2@uq.edu.au)。如果你需要联系与此研究无关的校方人员的话，请联系昆士兰大学道德委员会，联系方式(07) 3365 3924。

Appendix 13 Descriptive Results of Pilot Study

Chinese Culture Connection's value items (N=165)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
Filial piety	1	7	6.44	0.95	7.00	-2.26	6.96
Industry (working hard)	3	7	6.24	0.86	6.00	-0.89	0.21
Tolerance of others	1	7	5.91	1.08	6.00	-0.93	1.25
Harmony with others	3	7	5.93	0.99	6.00	-0.63	-0.28
Humbleness	3	7	5.70	1.13	6.00	-0.56	-0.45
Kindness (forgiveness, compassion)	1	7	5.98	1.18	6.00	-1.40	2.32
Knowledge (education)	4	7	6.47	0.77	7.00	-1.37	1.18
Self-cultivation	4	7	6.53	0.75	7.00	-1.65	2.29
Sense of righteousness	4	7	6.20	0.96	6.00	-0.96	-0.15
Personal steadiness & stability	1	7	5.87	1.15	6.00	-1.07	1.24
Sincerity	1	7	6.21	0.97	6.00	-1.64	4.49
Persistence (perseverance)	3	7	6.35	0.89	7.00	-1.37	1.64
Patience	1	7	6.31	0.90	7.00	-1.97	7.06
Adaptability	3	7	6.35	0.82	7.00	-1.59	3.15
Prudence (carefulness)	1	7	5.10	1.31	5.00	-0.26	-0.22
Trustworthiness	3	7	6.57	0.75	7.00	-1.90	3.75
Courtesy	3	7	6.50	0.78	7.00	-1.70	2.97
Loyalty to superiors	1	7	4.45	1.48	5.00	-0.26	-0.22
Benevolent authority	1	7	5.61	1.22	6.00	-0.68	0.12
Non-competitiveness	1	7	3.62	1.42	4.00	0.12	-0.21
Keeping oneself disinterested and pure	1	7	4.41	1.52	4.00	-0.02	-0.34
Contentedness with one's position in life	1	7	5.08	1.46	5.00	-0.18	-0.80
Being conservative	1	7	4.09	1.71	4.00	0.11	-0.72
Protecting your 'face'	1	7	4.08	1.52	4.00	-0.03	-0.30
A close, intimate friend	3	7	6.25	1.00	7.00	-1.25	0.73
Chastity in women	1	7	5.42	1.50	6.00	-0.68	-0.40
Having few desires	1	7	3.95	1.44	4.00	-0.03	-0.39
Respect for tradition	2	7	5.58	1.27	6.00	-0.39	-1.00
Observation of rites & social rituals	4	7	6.33	0.78	7.00	-0.97	0.28
Reciprocation of greetings, favours	3	7	6.06	1.02	6.00	-0.92	0.16
Solidarity with others	3	7	6.18	0.99	6.00	-1.12	0.67
Moderation-following the middle way	1	7	4.92	1.42	5.00	-0.30	-0.31
Ordering relationships by status	1	7	5.67	1.26	6.00	-0.82	0.29
Resistance to corruption	1	7	6.03	1.23	6.00	-1.72	3.73
Patriotism	1	7	6.21	1.05	7.00	-1.44	2.70
Thrift	1	7	5.25	1.38	5.00	-0.53	0.04
Having a sense of shame	1	7	6.14	1.16	7.00	-1.52	2.66
Repayment of good or evil of others	1	7	4.88	1.40	5.00	-0.25	-0.39
Sense of cultural superiority	1	7	4.70	1.55	5.00	-0.16	-0.63
Wealth	1	7	5.46	1.24	6.00	-0.62	0.25

Zhang's value items (N=165)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
An individual's consumption level should be consistent with their social status	1	7	4.81	1.61	5.00	-0.44	-0.39
An individual's daily behaviour should consistent with their social status	1	7	4.93	1.82	5.00	-0.73	-0.35
An individual's choice of clothing should consistent with their social status	1	7	4.30	1.75	4.00	-0.23	-0.82
I prefer to purchase luxury products when I am shopping with wealthier friends	1	7	2.76	1.53	3.00	0.68	-0.10
I try to avoid purchasing discounted products in front of my colleagues	1	7	2.51	1.59	2.00	1.10	0.72
A woman should wear makeup to please her husband	1	7	2.19	1.54	2.00	1.56	1.97
Modesty moves one forward, whereas conceit moves one backwards	1	7	5.16	1.65	5.00	-0.60	-0.51
The advice of my mentors is very important to me	1	7	5.00	1.29	5.00	-0.38	0.07
I would describe myself as a self-disciplined individual	1	7	5.41	1.57	6.00	-0.95	0.26
I admire natural beauty	1	7	5.59	1.37	6.00	-0.79	-0.02
My ideal living place is one that looks like a landscape painting	1	7	5.18	1.58	5.00	-0.60	-0.29
I prefer purchasing green food	1	7	5.27	1.41	6.00	-0.70	0.02
'Let it be' is the best motto in life	1	7	4.61	1.72	5.00	-0.33	-0.81
Harmony will be achieved spontaneously if everything evolves naturally	1	7	4.81	1.64	5.00	-0.50	-0.18
As a man sows, so he shall reap	1	7	5.34	1.54	6.00	-1.00	0.52
If you are kind in life, you will be rewarded in a future world	1	7	5.48	1.66	6.00	-1.11	0.57
Nothing is given without a disadvantage in it	1	7	5.78	1.47	6.00	-1.49	1.91
Lies will always be exposed	1	7	5.61	1.59	6.00	-1.05	0.37
Luxury goods are useless	1	7	3.39	1.49	3.00	0.18	-0.21
I rarely purchase luxury products, as the price is often inconsistent with their quality	1	7	3.64	1.54	4.00	0.26	-0.34
I believe in fate	1	7	5.82	1.31	6.00	-1.56	2.96
Every encounter with someone is the result of fate	1	7	5.66	1.36	6.00	-1.19	1.66

Yau's value items (N=165)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
Contentedness with and acceptance of who you are	1	7	5.08	1.46	5.00	-0.18	-0.80
Having few desires	1	7	3.95	1.44	4.00	-0.03	-0.39
Leave everything to fate	1	7	3.28	1.49	3.00	0.20	-0.56
Non-competitiveness	1	7	3.62	1.42	4.00	0.12	-0.21
Courtesy	3	7	6.50	0.78	7.00	-1.70	2.97
Humility (Humbleness)	3	7	5.70	1.13	6.00	-0.56	-0.45
Practical approach to things	1	7	5.79	1.15	6.00	-0.79	0.65
Adaptability to different situations	3	7	6.35	0.82	7.00	-1.59	3.15
Loyalty to the person or people you work for	1	7	4.45	1.48	5.00	-0.26	-0.22
Respect for seniority	1	7	4.54	1.47	4.00	-0.18	-0.12
Trust in the advice of experts	1	7	4.38	1.42	4.00	-0.23	0.10
Observation of social rituals and obligations.	4	7	6.33	0.78	7.00	-0.97	0.28
Reciprocation of greetings, favours, and gifts	3	7	6.06	1.02	6.00	-0.92	0.16
Repayment of the good that another person has caused you	1	7	6.08	1.08	6.00	-1.47	2.87
Belief that what you do now will have future consequences	1	7	5.24	1.47	5.00	-0.96	0.88
Revenge	1	7	3.55	1.64	4.00	0.35	-0.42
Having a sense of shame	1	7	6.14	1.16	7.00	-1.52	2.66
Having a clear conscience	1	7	6.37	0.93	7.00	-2.04	6.37
Protecting your public image (face)	1	7	4.08	1.52	4.00	-0.03	-0.30
Protecting your reputation	1	7	5.36	1.22	5.00	-0.49	0.19
Solidarity with others	3	7	6.18	0.99	6.00	-1.12	0.67
Filial piety	1	7	6.44	0.95	7.00	-2.26	6.96
Respect for tradition	2	7	5.58	1.27	6.00	-0.39	-1.00
Maintaining the status quo	1	7	3.87	1.50	4.00	0.36	0.03

Patience	1	7	6.31	0.90	7.00	-1.97	7.06
Perseverance (Persistence)	3	7	6.35	0.89	7.00	-1.37	1.64
Moderation in all things	1	7	4.92	1.42	5.00	-0.30	-0.31
Seeking a happy medium or satisfactory compromise in resolving conflicts	2	7	5.88	1.16	6.00	-0.97	0.85
Kindness and compassion for others	1	7	5.98	1.18	6.00	-1.40	2.32
Tolerance and understanding of others	1	7	5.91	1.08	6.00	-0.93	1.25

Hsu and Huang's value items (N=165)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
Confidence	5	7	6.55	0.64	7.00	-1.12	0.14
Non-competitiveness	1	7	3.62	1.42	4.00	0.12	-0.21
Respect for legal practices	4	7	6.42	0.76	7.00	-1.04	0.12
Being considerate of others	1	7	5.91	1.08	6.00	-0.93	1.25
Complacency	1	7	3.87	1.50	4.00	0.36	0.03
Courtesy and morality	3	7	6.50	0.78	7.00	-1.70	2.97
Down-to-earth	1	7	6.00	1.06	6.00	-1.18	2.09
Honesty	3	7	6.57	0.75	7.00	-1.90	3.75
Industry (working hard)	3	7	6.24	0.86	6.00	-0.89	0.21
Kindness	1	7	5.98	1.18	6.00	-1.40	2.32
Moderation	1	7	4.92	1.42	5.00	-0.30	-0.31
Planning	1	7	6.05	1.05	6.00	-1.34	2.74
Respect for history	2	7	5.58	1.27	6.00	-0.39	-1.00
Self-discipline	4	7	6.53	0.75	7.00	-1.65	2.29
Sense of obligation	1	7	6.45	0.86	7.00	-2.31	9.20
Thrift	1	7	5.25	1.38	5.00	-0.53	0.04
Convenience	2	7	5.44	1.23	5.00	-0.46	-0.21
Easy and comfortable	1	7	4.92	1.50	5.00	-0.37	-0.50
Fame and fortune	1	7	4.59	1.49	5.00	-0.38	-0.11
Fashion	1	7	4.99	1.44	5.00	-0.48	0.06
Indulgence	1	7	5.11	1.36	5.00	-0.41	-0.25
Leisure	1	7	5.53	1.21	6.00	-0.68	0.23
Liberation	1	7	6.04	1.12	6.00	-1.57	3.71
Live in the moment	1	7	5.64	1.35	6.00	-1.05	0.92
Ostentation	1	7	3.00	1.60	3.00	0.56	-0.45
Quality of life	3	7	5.98	1.02	6.00	-0.76	-0.22
Self-interest	1	7	3.87	1.60	4.00	-0.12	-0.80
Worship foreign cultures	1	7	3.30	1.55	3.00	0.16	-0.63
Health	4	7	6.67	0.69	7.00	-2.27	4.73
Horizon broadening/Novelty	1	7	6.30	1.00	7.00	-1.91	5.12
Knowledge and education	4	7	6.47	0.77	7.00	-1.37	1.18
Stability and security	1	7	5.87	1.15	6.00	-1.07	1.24
Collectivism	3	7	6.18	0.99	6.00	-1.12	0.67
Compromise	1	7	4.47	1.26	4.00	-0.25	0.52
Conformity	1	7	3.73	1.50	4.00	0.04	-0.42
Devotion to children	1	7	4.28	1.82	4.00	-0.15	-0.89
Family orientation/kinship	4	7	6.72	0.60	7.00	-2.36	5.64
Filial piety	1	7	6.44	0.95	7.00	-2.26	6.96
Friendship	3	7	6.25	1.00	7.00	-1.25	0.73
Harmony	3	7	5.93	0.99	6.00	-0.63	-0.28

Appendix 14: Phase 1 Onsite Survey

(English version)

CHINESE CULTURAL VALUES AND ENVIRONMENTAL BEHAVIOURS SURVEY

Please answer the questionnaire as honestly as you can. Please mark your answers by filling the circles like this: ●, Ⓧ

SECTION 1: CHINESE CULTURAL VALUES

1. Please rate the importance of the following as a guiding principle in your life: 1 = not at all important; 7 = extremely important.

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Down-to-earth	○	○	○	○	○	○	○
Planning	○	○	○	○	○	○	○
Stability and security	○	○	○	○	○	○	○
Sense of obligation	○	○	○	○	○	○	○
Courtesy and morality	○	○	○	○	○	○	○
Being considerate of others	○	○	○	○	○	○	○
Knowledge and education	○	○	○	○	○	○	○
Self-discipline	○	○	○	○	○	○	○
Industry (working hard)	○	○	○	○	○	○	○
Harmony	○	○	○	○	○	○	○
Honesty	○	○	○	○	○	○	○
Leisure	○	○	○	○	○	○	○
Liberation	○	○	○	○	○	○	○

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Indulgence	○	○	○	○	○	○	○
Fashion	○	○	○	○	○	○	○
Live in the moment	○	○	○	○	○	○	○
Self-interest	○	○	○	○	○	○	○
Fame and fortune	○	○	○	○	○	○	○
Ostentation	○	○	○	○	○	○	○
Easy and comfortable	○	○	○	○	○	○	○
Complacency	○	○	○	○	○	○	○
Non-competitiveness	○	○	○	○	○	○	○
Compromise	○	○	○	○	○	○	○
Conformity	○	○	○	○	○	○	○
Kindness	○	○	○	○	○	○	○
Respect for history	○	○	○	○	○	○	○

SECTION 2: ENVIRONMENTAL ATTITUDES

2. Please indicate to what extent you agree or disagree with the following statements: 1=strongly disagree; 5=strongly agree

	STRONGLY DISAGREE				STRONGLY AGREE
We are approaching the limit of the number of people the earth can support.	○	○	○	○	○
Humans have the right to modify the natural environment to suit their needs.	○	○	○	○	○
When humans interfere with nature it often produces disastrous consequences.	○	○	○	○	○
Humans are severely abusing the environment.	○	○	○	○	○
The earth has plenty of natural resources if we just learn how to develop them.	○	○	○	○	○
Plants and animals have as much right as humans to exist.	○	○	○	○	○
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	○	○	○	○	○
Despite our special abilities humans are still subject to the laws of nature.	○	○	○	○	○
The so-called ecological crisis facing humankind has been greatly exaggerated.	○	○	○	○	○
The earth is like a spaceship with very limited room and resources.	○	○	○	○	○
Humans were meant to rule over the rest of nature.	○	○	○	○	○
The balance of nature is very delicate and easily upset.	○	○	○	○	○
If things continue on their present course, we will soon experience a major ecological catastrophe.	○	○	○	○	○

SECTION 3: ENVIRONMENTAL BEHAVIOURS

3. Have you engaged in any of the following behaviours during **visit at Tangalooma Island Resort**? If you answer '**No**' for any item, please tell us why you did not engage in this behaviour.

Yes	**No**		**If no, why?**
○	○	I tried to spend a shorter time in the shower to save water	.....
○	○	I turned off the tap while brushing my teeth to save water	.....
○	○	I switched off the television when I was not in the room.	.....
○	○	I switched off the lights when I was not in the room.	.....
○	○	I turned off the air conditioning/ heating when I was not in the room.	.....
○	○	I recycled paper/plastic/glass products whenever possible.	.....
○	○	I placed rubbish in the bins provided.	.....

4. Have you engaged in any of the following on-site activities during a **visit to Tangalooma Island Resort**?

ISLAND ACTIVITIES

Yes	No	
○	○	Wild dolphin feeding
○	○	Desert Safari Tour + sand tobogganing
○	○	ATV Quad Bike Tours
○	○	4WD Car Hire
○	○	Beach biking
○	○	Helicopter Joy flights
○	○	Segway tour
○	○	Guide walk & presentation

WATER-BASED ACTIVITIES

Yes	No	
○	○	Marine Discovery Cruise
○	○	Whale Watch Cruise
○	○	Parasailing
○	○	Fish-feeding Tour at Wrecks
○	○	Banana boat rides
○	○	Snorkel the wrecks
○	○	Scuba diving
○	○	Sunset cruise

5. If you answer '**No**' for any items listed above, please tell us why you did not engage in these behaviours (*Select all that apply*)

- ○ Water is too cold
- ○ Sun is too hot
- ○ Too crowded
- ○ Some of the activities are too risky
- ○ Not enough time
- ○ Too expensive
- ○ Did not hear about it
- ○ I have participated in this activity before
- ○ Booking process was not clear
- ○ I am too old
- ○ Fear/I am afraid
- ○ Poor health
- ○ Not interested
- ○ I do not want to get wet
- ○ Do not swim
- ○ Not exciting
- ○ Boring
- ○ Will do it in somewhere else (e.g., Cairns)
- ○ Just want to have a rest
- ○ Others……

SECTION 4: ABOUT YOU

6. Please indicate whether or not you agree or disagree with the following statements

Yes	No	
○	○	I sometimes feel resentful when I don't get my way.
○	○	On a few occasions, I have given up doing something because I thought too little of my ability.
○	○	I like to gossip at times.
○	○	There have been times when I felt like rebelling against people in authority even thought I knew they were right.
○	○	No matter whom I'm talking to, I'm always a good listener.
○	○	I can remember "playing sick" to get out of something.
○	○	There have been occasions when I took advantage of someone.
○	○	I'm always willing to admit it when I make a mistake.
○	○	I sometimes try to get even rather than forgive and forget.
○	○	I am always courteous, even to people who are disagreeable.
○	○	I have never been irked when people expressed ideas very different from my own.
○	○	There have been times when I was quite jealous of the good fortune of others.
○	○	I am sometimes irritated by people who ask favours of me.
○	○	I have never deliberately said something that hurt someone's feelings.

7. Please tell us, are you:

   ◯ Female
   ◯ Male

8. Please tell us, in what year were you born?

   Year: 19 ___ ___

9. What is your occupation：

   ◯ Student
   ◯ Employed for wages
   ◯ Self-employed
   ◯ Education
   ◯ Government and public administrator
   ◯ Unemployed
   ◯ Retired
   ◯ Other . .....

10. Which city are you from? .....

11. Are you visiting the island as part of an organised group tour?

    ◯ Yes
    ◯ No

12. How many nights have you stayed in Tangalooma?

    ◯ 1 night
    ◯ 2-3 nights
    ◯ More than 3 nights

13. How many times have you travelled outside of China before?

    ◯ No past travel abroad experience
    ◯ 1-2 times
    ◯ 3-4 times
    ◯ More than 5 times

中国文化价值观和环境行为调查

请您尽可能诚实地完成以下问卷。

第一部分：中国文化价值观

1. 请评估以下每一项作为您人生指导原则的重要性，由 1=完全不重要，至 7=十分重要。

	完全不重要						十分重要
务实	○	○	○	○	○	○	○
规划	○	○	○	○	○	○	○
安稳	○	○	○	○	○	○	○
责任感	○	○	○	○	○	○	○
有礼貌	○	○	○	○	○	○	○
为他人着想	○	○	○	○	○	○	○
知识教育	○	○	○	○	○	○	○
自律	○	○	○	○	○	○	○
勤奋	○	○	○	○	○	○	○
和谐	○	○	○	○	○	○	○
诚信	○	○	○	○	○	○	○
休闲	○	○	○	○	○	○	○
个性	○	○	○	○	○	○	○

	完全不重要						十分重要
享乐	○	○	○	○	○	○	○
时尚	○	○	○	○	○	○	○
活在当下	○	○	○	○	○	○	○
私利	○	○	○	○	○	○	○
名利	○	○	○	○	○	○	○
攀比	○	○	○	○	○	○	○
安逸	○	○	○	○	○	○	○
安于现状	○	○	○	○	○	○	○
不重竞争	○	○	○	○	○	○	○
妥协	○	○	○	○	○	○	○
从众	○	○	○	○	○	○	○
友善	○	○	○	○	○	○	○
尊重历史	○	○	○	○	○	○	○

请看背面 →

第二部分：环境态度

2. 请指出您在哪种程度上同意或不同意以下观点。由 1=完全不同意，至 5=完全同意。

	完全不同意 1				完全同意 5
目前的人口总量正在接近地球能够承受的极限	○	○	○	○	○
人是最重要的，可以为了满足自身的需要而改变自然	○	○	○	○	○
人类对于自然的破坏常常导致灾难性后果	○	○	○	○	○
目前人类正在滥用和破坏环境	○	○	○	○	○
只要我们知道如何开发，地球上的自然资源是很充足的	○	○	○	○	○
动植物与人类有着一样的生存权	○	○	○	○	○
自然界的自我平衡能力足够强，完全可以应付现代工业社会的冲击	○	○	○	○	○
尽管人类有着特殊能力，但是仍然受自然规律的支配	○	○	○	○	○
所谓人类正在面临"环境危机"是一种过分夸大的说法	○	○	○	○	○
地球就像宇宙飞船，只有很有限的空间和资源	○	○	○	○	○
人类生来就是主人，是要统治自然界的其他部分的	○	○	○	○	○
自然界的平衡是很脆弱的，很容易被打乱	○	○	○	○	○
如果一切按照目前的样子继续，我们很快将遭受严重的环境灾难	○	○	○	○	○

第三部分：环境行为

3. 在**天阁露玛度假村**旅游的这段时间里，您是否有过以下行为？ 如果您对于某项行为选择"否"，请您告知为什么没有参与这项行为。

是	否		如果选择"否"，为什么？
○	○	为了节约用水，我用尽可能短的时间洗澡。	
○	○	为了节约用水，我在刷牙时关掉水龙头。	
○	○	当我离开房间的时候，我会关掉电视。	
○	○	当我离开房间的时候，我会关掉灯。	
○	○	当我离开房间的时候，我会关掉空调/暖气。	
○	○	只要条件允许，我会将纸制品/塑料制品/玻璃制品放进回收箱。	
○	○	我会将垃圾扔到垃圾桶里。	

4. 在**天阁露玛度假村**旅游的这段时间里，您是否参与过以下活动？

陆上活动

是	否	
○	○	喂野生海豚
○	○	沙漠越野之旅+激情滑沙
○	○	全地形四驱摩托车之旅
○	○	四驱车租赁
○	○	沙滩自行车
○	○	直升机观光游
○	○	思维车之旅
○	○	摩顿岛私家游

水上活动

是	否	
○	○	海洋探索之旅
○	○	观鲸之旅
○	○	滑翔伞（翱翔降落伞）
○	○	喂鱼与沉船观光之旅
○	○	香蕉船
○	○	沉船浮潜
○	○	潜水（深潜）
○	○	日落巡游

5. 如果您对于以上**任何一项**活动选择**"否"**，请您告知为什么**没有**参与这些活动。（**多选**，请选择**所有**导致您未参与以上这些活动的原因）

- ○ 水太凉了
- ○ 天气太热、阳光太强
- ○ 人太多、太拥挤
- ○ 有些项目有风险
- ○ 没有充足的时间
- ○ 票价太贵
- ○ 没听说有这个项目
- ○ 之前在别的地方玩过了
- ○ 活动预定过程太繁琐复杂
- ○ 年龄太大不适合玩这些
- ○ 恐惧
- ○ 个人身体状况不好
- ○ 不感兴趣
- ○ 不想弄湿衣裤
- ○ 不会游泳
- ○ 不刺激
- ○ 无聊
- ○ 打算之后去别的地方玩（例如：凯恩斯）
- ○ 就是想好好休息一下
- ○ 其他……

第三部分：关于您

6. 请指出您是否同意以下说法。

是	否	
○	○	当我不能按照自己的方式做事情时，我有时感到很恐惧
○	○	有些时候，因为觉得自己能力有限，我会放弃做事情。
○	○	我有时喜欢说闲话。
○	○	有时我想和权威者对抗，即使我知道他们是对的。
○	○	不论和谁交谈，我都是一个很好的倾听者。
○	○	我记得有过为躲开某些事情而"装病"的时候。
○	○	我有过利用别人而去做某些事情的情况。
○	○	一旦我犯了错误，我总会承认的。
○	○	我有时会努力去获得一种公平，而不是原谅某人或是把事情忘记。
○	○	与人相处，我总是有礼貌的，即使是和那些难以相处的人相处。
○	○	当别人的观点和我不同时，我从没有厌烦的感觉。
○	○	我有些时候对别人的幸运非常嫉妒。
○	○	我有些时候因为别人要我帮忙而感到生气。
○	○	我从来没有过有意说一些事情来伤害其他人的感情。

请看背面 →

7. 您的性别是:

○ 女性
○ 男性

8. 您的出生**年份**是？

19 …… …… 年

9. 您的职业是：

○ 学生
○ 公司员工
○ 自主创业
○ 教育工作者
○ 政府工作人员
○ 无业
○ 退休
○ 其他 ……

10. 您来自中国哪个城市?……

11. 此次天阁露玛之旅，您是跟团旅行吗？

○ 是
○ 否

12. 此次天阁露玛之旅，您在天阁露玛总共住了几晚？

○ 1 晚
○ 2-3 晚
○ 多于 3 晚

13. 您之前曾经有过多少次出国旅游的经历？

○ 之前从没出国旅游过
○ 1-2 次
○ 3-4 次
○ 多于 4 次

Appendix 15 Descriptive Results for Phase 1 Onsite Study

Chinese Cultural Values (N=505)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
Down-to-earth	1	7	5.99	1.29	7.00	-1.22	1.04
Planning	1	7	5.80	1.35	6.00	-1.11	0.94
Stability and security	1	7	5.61	1.47	6.00	-0.96	0.30
Sense of obligation	1	7	6.43	1.01	7.00	-2.54	8.48
Courtesy and morality	1	7	6.14	1.18	7.00	-1.71	3.43
Being considerate of others	1	7	5.99	1.19	6.00	-1.32	1.95
Knowledge and education	1	7	6.22	1.11	7.00	-1.70	3.48
Self-discipline	1	7	6.29	1.08	7.00	-1.99	4.89
Industry (working hard)	1	7	6.16	1.16	7.00	-1.60	2.77
Harmony	1	7	6.09	1.24	7.00	-1.48	2.01
Honesty	1	7	6.71	0.77	7.00	-3.99	21.37
Leisure	1	7	5.38	1.44	6.00	-0.94	0.86
Liberation	1	7	5.20	1.49	5.00	-0.67	0.05
Indulgence	1	7	4.85	1.61	5.00	-0.50	-0.22
Fashion	1	7	4.58	1.68	5.00	-0.42	-0.42
Live in the moment	1	7	5.23	1.73	6.00	-0.91	0.08
Self-interest	1	7	3.31	1.65	3.00	0.22	-0.67
Fame and fortune	1	7	3.26	1.70	3.00	0.22	-0.82
Ostentation	1	7	2.49	1.60	2.00	0.93	0.11
Easy and comfortable	1	7	4.55	1.74	5.00	-0.37	-0.57
Complacency	1	7	3.62	1.75	4.00	0.07	-0.68
Non-competitiveness	1	7	3.69	1.70	4.00	0.19	-0.62
Compromise	1	7	3.99	1.62	4.00	-0.14	-0.40
Conformity	1	7	3.54	1.69	4.00	0.15	-0.61
Kindness	1	7	6.06	1.22	7.00	-1.60	3.17
Respect for history	1	7	5.95	1.34	6.00	-1.32	1.35

Environmental Attitudes (N=505)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
We are approaching the limit of the number of people the earth can support.	1	5	3.90	1.15	4.00	-0.84	-0.14
Humans have the right to modify the natural environment to suit their needs. (reverse coded)	1	5	3.93	1.29	4.00	-1.05	-0.06
When humans interfere with nature it often produces disastrous consequences.	1	5	4.42	0.97	5.00	-1.90	3.30
Humans are severely abusing the environment.	1	5	4.18	1.10	5.00	-1.40	1.30
The earth has plenty of natural resources if we just learn how to develop them. (reverse coded)	1	5	3.30	1.47	4.00	-0.33	-1.27
Plants and animals have as much right as humans to exist.	1	5	4.39	1.04	5.00	-1.80	2.54
The balance of nature is strong enough to cope with the impacts of modern industrial nations. (reverse coded)	1	5	3.96	1.25	4.00	-1.04	-0.01
Despite our special abilities humans are still subject to the laws of nature.	1	5	4.26	1.05	5.00	-1.53	1.80
The so-called ecological crisis facing humankind has been greatly exaggerated. (reverse coded)	1	5	3.88	1.33	4.00	-0.92	-0.42
The earth is like a spaceship with very limited room and resources.	1	5	4.07	1.19	5.00	-1.19	0.44
Humans were meant to rule over the rest of nature. (reverse coded)	1	5	4.05	1.25	5.00	-1.12	0.06
The balance of nature is very delicate and easily upset.	1	5	3.97	1.14	4.00	-0.88	-0.14
If things continue on their present course, we will soon experience a major ecological catastrophe.	1	5	4.19	1.06	5.00	-1.20	0.71

Environmental Behaviours and SDB (N=505)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
I tried to spend shorter time in the shower to save water	0	1	0.88	0.32	1.00	-2.39	3.74
I turned off the tap while brushing my teeth to save water.	0	1	0.96	0.20	1.00	-4.74	20.51
I switched off the television when I was not in the room.	0	1	0.97	0.16	1.00	-6.01	34.22
I switched off the lights when I was not in the room.	0	1	0.94	0.23	1.00	-3.82	12.61
I turned off the air conditioning/heating when I was not in the room.	0	1	0.93	0.26	1.00	-3.29	8.83
I recycled paper/plastic/glass products whenever possible.	0	1	0.97	0.17	1.00	-5.56	29.00
I placed rubbish in the bins provided.	0	1	0.99	0.12	1.00	-8.34	67.84
Wild dolphin feeding	0	1	0.64	0.48	1.00	-0.57	-1.68
Desert Safari Tour + sand tobogganing	0	1	0.26	0.44	0.00	1.09	-0.82
ATV Quad Bike Tours	0	1	0.19	0.39	0.00	1.58	0.51
4WD Car Hire	0	1	0.07	0.25	0.00	3.53	10.49
Beach biking	0	1	0.06	0.23	0.00	3.90	13.24
Helicopter Joy flights	0	1	0.23	0.42	0.00	1.32	-0.27
Segway tour	0	1	0.04	0.20	0.00	4.74	20.51
Guide walk & presentation	0	1	0.04	0.20	0.00	4.61	19.29
Marine Discovery Cruise	0	1	0.09	0.29	0.00	2.81	5.92
Whale Watch Cruise	0	1	0.34	0.47	0.00	0.68	-1.54
Parasailing	0	1	0.16	0.37	0.00	1.84	1.38
Fish feeding Tour at Wrecks	0	1	0.17	0.38	0.00	1.78	1.17
Banana boat rides	0	1	0.05	0.23	0.00	3.98	13.91
Snorkel the wrecks	0	1	0.13	0.34	0.00	2.15	2.62
Scuba diving	0	1	0.06	0.23	0.00	3.82	12.61
Sunset cruise	0	1	0.11	0.32	0.00	2.42	3.89
SDB total	0	14	8.47	2.69	9.00	-0.48	-0.18

Appendix 16: Phase 2 Online Survey

(English version)

CHINESE CULTURAL VALUES AND ENVIRONMENTAL BEHAVIOURS SURVEY

Please answer the questionnaire as honestly as you can.

SECTION 1: CHINESE CULTURAL VALUES

1. Please rate the importance of the following as a guiding principle in your life: 1 = not at all important; 7 = extremely important.

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Down-to-earth	○	○	○	○	○	○	○
Planning	○	○	○	○	○	○	○
Stability and security	○	○	○	○	○	○	○
Sense of obligation	○	○	○	○	○	○	○
Courtesy and morality	○	○	○	○	○	○	○
Being considerate of others	○	○	○	○	○	○	○
Knowledge and education	○	○	○	○	○	○	○
Self-discipline	○	○	○	○	○	○	○
Industry (working hard)	○	○	○	○	○	○	○
Harmony	○	○	○	○	○	○	○
Honesty	○	○	○	○	○	○	○
Leisure	○	○	○	○	○	○	○
Liberation	○	○	○	○	○	○	○

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
Indulgence	○	○	○	○	○	○	○
Fashion	○	○	○	○	○	○	○
Live in the moment	○	○	○	○	○	○	○
Self-interest	○	○	○	○	○	○	○
Fame and fortune	○	○	○	○	○	○	○
Ostentation	○	○	○	○	○	○	○
Easy and comfortable	○	○	○	○	○	○	○
Complacency	○	○	○	○	○	○	○
Non-competitiveness	○	○	○	○	○	○	○
Compromise	○	○	○	○	○	○	○
Conformity	○	○	○	○	○	○	○
Kindness	○	○	○	○	○	○	○
Respect for history	○	○	○	○	○	○	○

SECTION 2: ENVIRONMENTAL ATTITUDES

2. Please indicate to what extent you agree or disagree with the following statements: 1 = strongly disagree; 5 = strongly agree

	STRONGLY DISAGREE				STRONGLY AGREE
We are approaching the limit of the number of people the earth can support.	○	○	○	○	○
Humans have the right to modify the natural environment to suit their needs.	○	○	○	○	○
When humans interfere with nature it often produces disastrous consequences.	○	○	○	○	○
Humans are severely abusing the environment.	○	○	○	○	○
The earth has plenty of natural resources if we just learn how to develop them.	○	○	○	○	○
Plants and animals have as much right as humans to exist.	○	○	○	○	○
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	○	○	○	○	○
Despite our special abilities humans are still subject to the laws of nature.	○	○	○	○	○
The so-called ecological crisis facing humankind has been greatly exaggerated.	○	○	○	○	○
The earth is like a spaceship with very limited room and resources.	○	○	○	○	○
Humans were meant to rule over the rest of nature.	○	○	○	○	○
The balance of nature is very delicate and easily upset.	○	○	○	○	○
If things continue on their present course, we will soon experience a major ecological catastrophe.	○	○	○	○	○

SECTION 3: YOUR PERSONAL ATTITUDES AND CHARACTERISTICS

3. Please indicate whether or not you agree or disagree with the following statements

Yes	**No**	
○	○	I sometimes feel resentful when I don't get my way.
○	○	On a few occasions, I have given up doing something because I thought too little of my ability.
○	○	I like to gossip at times.
○	○	There have been times when I felt like rebelling against people in authority even thought I knew they were right.
○	○	No matter whom I'm talking to, I'm always a good listener.
○	○	I can remember "playing sick" to get out of something.
○	○	There have been occasions when I took advantage of someone.
○	○	I'm always willing to admit it when I make a mistake.
○	○	I sometimes try to get even rather than forgive and forget.
○	○	I am always courteous, even to people who are disagreeable.
○	○	I have never been irked when people expressed ideas very different from my own.
○	○	There have been times when I was quite jealous of the good fortune of others.
○	○	I am sometimes irritated by people who ask favours of me.
○	○	I have never deliberately said something that hurt someone's feelings.

SECTION 4: RECENT OVERSEAS TRIP

4. Which of the following overseas destination have you visited most recently **in the last 12 months**?
   - ◯ Thailand
   - ◯ Korea
   - ◯ Japan
   - ◯ Vietnam
   - ◯ America
   - ◯ Singapore
   - ◯ Russia
   - ◯ Australia
   - ◯ New Zealand
   - ◯ Indonesia
   - ◯ Malaysia
   - ◯ Other_____

5. In which month you had your most recent overseas trip?

   (drop down box from January to December)

6. How long was your most recent overseas trip?
   - ◯ Less than 1 week
   - ◯ 1-2 weeks
   - ◯ More than 2 weeks

7. What was the travel pattern of your most recent overseas trip?
   - ◯ Organised group
   - ◯ Independent traveller
   - ◯ Visiting friends or relatives
   - ◯ Other_____

SECTION 5: ENVIRONMENTAL BEHAVIOURS

8. How frequently have you engaged in any of the following behaviours during **your most recent overseas trip**: 1 = never; 4 = always (Please answer the following questions as honestly as possible)

	NEVER			ALWAYS
I saved water	◯	◯	◯	◯
I collected flowers, shells, coral or other items to take home	◯	◯	◯	◯
I picked up litter that was not my own	◯	◯	◯	◯
I placed rubbish in the bins provided	◯	◯	◯	◯
I engaged in outdoor leisure activities	◯	◯	◯	◯
I read nature or environmental magazines	◯	◯	◯	◯
I closed doors and windows to avoid heat/coolness escape	◯	◯	◯	◯
I re-used bags from home when going shopping	◯	◯	◯	◯
I switched off the heating/cooling in unoccupied rooms	◯	◯	◯	◯
I bought products that protect the environment (i.e. green products)	◯	◯	◯	◯
I recycled cans or bottles	◯	◯	◯	◯
I looked for ways to reuse things	◯	◯	◯	◯
I switched off the light whenever leaving a room	◯	◯	◯	◯
I used public transport instead of the car	◯	◯	◯	◯

9. Did you engage in any of the following nature-based activities during your **visit in your most recent outbound travel destination**?

Yes	No	
○	○	Visiting national parks or state parks
○	○	Visiting wildlife parks, zoos or aquariums
○	○	Visiting botanical or other public gardens
○	○	Visiting natural museums
○	○	Walking in natural area (i.e., hiking, walking in the forest, bush walking)
○	○	Participating outdoor adventure activities (i.e., skiing, sky diving, scuba diving)
○	○	Participating natural sightseeing activities (i.e., helicopter tour, 4WD tour, Segway tour)
○	○	Watching marine animals (i.e. whales, dolphins, turtles)
○	○	Visiting natural areas (i.e. resort, island, nature protection area)
○	○	Taking pictures of natural scenery

SECTION 6: ABOUT YOU

10. Please tell us, are you:
    - ○ Female
    - ○ Male

11. Please tell us, in what year were you born?
(drop down box from 1940 to 2000)

12. Please tell us your highest degree:
    - ○ Junior High School
    - ○ Senior High School
    - ○ Bachelors Degree
    - ○ Masters Degree
    - ○ PhD Degree
    - ○ Other_____

13. What is your occupation:
    - ○ Student
    - ○ Employed for wages
    - ○ Self-employed
    - ○ Education
    - ○ Government and public administrator
    - ○ Doctor
    - ○ Unemployed
    - ○ Retired
    - ○ Other_____

14. Which city are you from:

_____

15. How many past overseas travel experiences do you have apart from the one trip in the last 12 months:
    - ○ 0
    - ○ 1-2 times
    - ○ 3-4 times
    - ○ More than 4 times

(Chinese version)

中国文化价值观和环境行为调查问卷 – 出境游

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

请您尽可能如实回答以下问卷，谢谢！

第一部分：中国文化价值观

1. 请评估以下每一项作为您人生指导原则的重要性，由 1=完全不重要，至 7=十分重要

	完全不重要						十分重要
务实	○	○	○	○	○	○	○
规划	○	○	○	○	○	○	○
安稳	○	○	○	○	○	○	○
责任感	○	○	○	○	○	○	○
有礼貌	○	○	○	○	○	○	○
为他人着想	○	○	○	○	○	○	○
知识教育	○	○	○	○	○	○	○
自律	○	○	○	○	○	○	○
勤奋	○	○	○	○	○	○	○
和谐	○	○	○	○	○	○	○
诚信	○	○	○	○	○	○	○
休闲	○	○	○	○	○	○	○
个性	○	○	○	○	○	○	○

	完全不重要						十分重要
享乐	○	○	○	○	○	○	○
时尚	○	○	○	○	○	○	○
活在当下	○	○	○	○	○	○	○
私利	○	○	○	○	○	○	○
名利	○	○	○	○	○	○	○
攀比	○	○	○	○	○	○	○
安逸	○	○	○	○	○	○	○
安于现状	○	○	○	○	○	○	○
不重竞争	○	○	○	○	○	○	○
妥协	○	○	○	○	○	○	○
从众	○	○	○	○	○	○	○
友善	○	○	○	○	○	○	○
尊重历史	○	○	○	○	○	○	○

第二部分：环境态度

2. 请指出您在哪种程度上同意或不同意以下观点。由 1=完全不同意，至 5=完全同意。

	完全不同意				完全同意
目前的人口总量正在接近地球能够承受的极限	○	○	○	○	○
人是最重要的，可以为了满足自身的需要而改变自然	○	○	○	○	○
人类对于自然的破坏常常导致灾难性后果	○	○	○	○	○
目前人类正在滥用和破坏环境	○	○	○	○	○
只要我们知道如何开发，地球上的自然资源是很充足的	○	○	○	○	○
动植物与人类有着一样的生存权	○	○	○	○	○
自然界的自我平衡能力足够强，完全可以应付现代工业社会的冲击	○	○	○	○	○
尽管人类有着特殊能力，但是仍然受自然规律的支配	○	○	○	○	○
所谓人类正在面临"环境危机"是一种过分夸大的说法	○	○	○	○	○
地球就像宇宙飞船，只有很有限的空间和资源	○	○	○	○	○
人类生来就是主人，是要统治自然界的其他部分的	○	○	○	○	○
自然界的平衡是很脆弱的，很容易被打乱	○	○	○	○	○
如果一切按照目前的样子继续，我们很快将遭受严重的环境灾难	○	○	○	○	○

第三部分：个人态度和心理特点

3. 请您指出您是否同意以下观点：

是	否	
○	○	当我不能按照自己的方式做事情时，我有时感到很恐惧
○	○	有些时候，因为觉得自己能力有限，我会放弃做事情。
○	○	我有时喜欢说闲话。
○	○	有时我想和权威者对抗，即使我知道他们是对的。
○	○	不论和谁交谈，我都是一个很好的倾听者。
○	○	我记得有过为躲开某些事情而"装病"的时候。
○	○	我有过利用别人而去做某些事情的情况。
○	○	一旦我犯了错误，我总会承认的。
○	○	我有时会努力去获得一种公平，而不是原谅某人或是把事情忘记。
○	○	与人相处，我总是有礼貌的，即使是和那些难以相处的人相处。
○	○	当别人的观点和我不同时，我从没有厌烦的感觉。
○	○	我有些时候对别人的幸运非常嫉妒。
○	○	我有些时候因为别人要我帮忙而感到生气。
○	○	我从来没有过有意说一些事情来伤害其他人的感情。

第四部分：最近一次出境游

4. 请问您在过去的 **12 个月内，最近一次**出境游是以下哪个国家或地区？
   - ○ 泰国
   - ○ 韩国
   - ○ 日本
   - ○ 越南
   - ○ 美国
   - ○ 新加坡
   - ○ 俄罗斯
   - ○ 澳大利亚
   - ○ 新西兰
   - ○ 印尼
   - ○ 马来西亚
   - ○ 其他_____

5. 您**最近一次**出境游是在 2016 年的几月份?

   （下拉菜单显示 1-12 月份）

6. 您最近一次出境游时长为多少天?
   - ○ 不到 1 周
   - ○ 1-2 周
   - ○ 超过 2 周

7. 您最近一次出境游的方式是?
   - ○ 自由行
   - ○ 跟团游
   - ○ 探亲访友
   - ○ 其他_____

第五部分：环境相关行为

8. 在最近一次出境旅游的这段时间里，请您指出您参与以下行为的频率。由 1＝没有这样做，至 4＝总是这样做

	没有这样做			总是这样做
节约用水	○	○	○	○
破坏树木或植物	○	○	○	○
捡起别人扔的垃圾	○	○	○	○
将垃圾扔进垃圾桶	○	○	○	○
参与户外活动	○	○	○	○
阅读与自然和环境相关的杂志	○	○	○	○
在开有暖气或空调的房间里，关好门窗以防热气或冷气流失	○	○	○	○
购物时自备购物袋	○	○	○	○
离开房间时，关掉暖气或空调	○	○	○	○
购买绿色产品	○	○	○	○
将玻璃或铝制品回收分类	○	○	○	○
对物品再利用	○	○	○	○
离开房间时，随手关灯	○	○	○	○
乘坐公共交通而不是自驾车	○	○	○	○

9. 最近一次出境旅游的这段时间里，您是否参与过以下活动：

是	否	
○	○	参观国家公园或州立公园
○	○	参观野生动物园或动物园或水族馆
○	○	参观植物园或其他公共公园
○	○	参观自然博物馆
○	○	参加户外徒步活动，如：登山、丛林徒步、长跑等
○	○	参加户外冒险活动，如：跳伞、滑雪、潜水灯
○	○	参加户外观光活动，如：直升机观光、沙漠四驱车观光、思维车观光等
○	○	参加观看海洋动物活动，如：观鲸、观海豚、观海龟等
○	○	探访自然景区，如：自然保护区、海岛、度假村等
○	○	拍摄自然风景，如：花草树木、野生动物、山川湖海等。

第六部分：关于您

10. 您的性别是：
- ○ 女
- ○ 男

11. 您的出生年份是：

(下拉菜单从 1940 到 2000)

12. 您的最高学历是:
- ○ 初中
- ○ 高中
- ○ 大学本科
- ○ 硕士研究生
- ○ 博士研究生
- ○ 其他_____

13. 您的职业是:
- ○ 学生
- ○ 公司员工
- ○ 自出创业
- ○ 教育工作者
- ○ 政府工作人员
- ○ 医护工作者
- ○ 无业
- ○ 退休
- ○ 其他_____

14. 您来自中国哪个城市:

_____

15. 您在此出境游之前，曾有多少次出境旅游的经验:
- ○ 0 次
- ○ 1-2 次
- ○ 3-4 次
- ○ 4 次以上

Appendix 17 Descriptive Results for Phase 2 Online Study

Chinese Cultural Values (N=809)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
Down-to-earth	1	7	5.96	0.96	6.00	-0.91	1.20
Planning	1	7	5.88	0.99	6.00	-0.91	0.98
Stability and security	2	7	5.66	1.07	6.00	-0.65	0.35
Sense of obligation	2	7	6.19	0.92	6.00	-1.21	1.58
Courtesy and morality	2	7	5.99	0.93	6.00	-0.86	0.86
Being considerate of others	2	7	5.62	1.00	6.00	-0.53	0.22
Knowledge and education	1	7	5.96	0.94	6.00	-0.83	0.96
Self-discipline	1	7	6.06	0.92	6.00	-0.95	1.18
Industry (working hard)	2	7	6.10	0.92	6.00	-0.97	0.86
Harmony	2	7	5.98	0.97	6.00	-0.83	0.53
Honesty	1	7	6.34	0.89	7.00	-1.65	4.04
Leisure	2	7	5.44	0.98	5.00	-0.39	0.10
Liberation	1	7	5.41	0.97	5.00	-0.31	0.19
Indulgence	1	7	5.08	1.18	5.00	-0.50	0.14
Fashion	1	7	5.27	1.10	5.00	-0.50	0.21
Live in the moment	1	7	5.53	1.13	6.00	-0.76	0.77
Self-interest	1	7	3.69	1.48	4.00	0.08	-0.66
Fame and fortune	1	7	4.26	1.46	4.00	-0.30	-0.46
Ostentation	1	7	3.26	1.57	3.00	0.43	-0.57
Easy and comfortable	1	7	4.92	1.30	5.00	-0.48	-0.03
Complacency	1	7	4.15	1.37	4.00	-0.22	-0.34
Non-competitiveness	1	7	3.80	1.41	4.00	0.14	-0.35
Compromise	1	7	3.95	1.33	4.00	-0.03	-0.29
Conformity	1	7	4.02	1.37	4.00	-0.18	-0.22
Kindness	1	7	5.95	1.05	6.00	-1.24	2.06
Respect for history	1	7	5.83	0.99	6.00	-0.82	0.72

Environmental Attitudes (N=809)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
We are approaching the limit of the number of people the earth can support.	1	5	3.96	0.73	4.00	-0.50	0.44
Humans have the right to modify the natural environment to suit their needs. (reverse coded)	1	5	3.26	1.19	4.00	-0.31	-0.93
When humans interfere with nature it often produces disastrous consequences.	1	5	4.26	0.73	4.00	-1.03	1.77
Humans are severely abusing the environment.	1	5	4.22	0.77	4.00	-1.12	1.89
The earth has plenty of natural resources if we just learn how to develop them. (reverse coded)	1	5	3.06	1.17	3.00	-0.01	-0.94
Plants and animals have as much right as humans to exist.	1	5	4.30	0.72	4.00	-0.97	1.48
The balance of nature is strong enough to cope with the impacts of modern industrial nations. (reverse coded)	1	5	3.40	1.19	4.00	-0.39	-0.83
Despite our special abilities humans are still subject to the laws of nature.	1	5	4.21	0.74	4.00	-0.89	1.21
The so-called ecological crisis facing humankind has been greatly exaggerated. (reverse coded)	1	5	3.71	1.16	4.00	-0.74	-0.39
The earth is like a spaceship with very limited room and resources.	1	5	4.06	0.81	4.00	-0.98	1.71
Humans were meant to rule over the rest of nature. (reverse coded)	1	5	3.39	1.18	4.00	-0.40	-0.83

The balance of nature is very delicate and easily upset.	1	5	4.07	0.77	4.00	-0.82	1.16
If things continue on their present course, we will soon experience a major ecological catastrophe.	1	5	4.15	0.77	4.00	-0.88	1.29

Environmental Behaviours and SDB (N=809)

	Minimum	Maximum	Mean	Std. Deviation	Median	Skewness	Kurtosis
I saved water	1	4	3.21	0.67	3.00	-0.46	0.05
I collected flowers, shells, coral or other items to take home (reverse coded)	3	4	3.80	0.40	4.00	-1.50	0.25
I picked up litter that was not my own	1	4	2.30	0.92	2.00	0.25	-0.74
I placed rubbish in the bins provided	1	4	3.54	0.68	4.00	-1.50	2.05
I engaged in outdoor leisure activities	1	4	3.22	0.66	3.00	-0.59	0.56
I read nature or environmental magazines	1	4	2.81	0.85	3.00	-0.34	-0.46
I closed doors and windows to avoid heat/coolness escape	1	4	3.36	0.69	3.00	-0.94	0.86
I re-used bags from home when going shopping	1	4	3.05	0.84	3.00	-0.58	-0.27
I switched off the heating/cooling in unoccupied rooms	1	4	3.49	0.65	4.00	-1.06	0.68
I bought products that protect the environment (i.e. green products)	1	4	3.23	0.66	3.00	-0.57	0.46
I recycled cans or bottles	1	4	2.86	0.86	3.00	-0.37	-0.51
I looked for ways to reuse things	1	4	3.00	0.79	3.00	-0.43	-0.30
I switched off the light whenever leaving a room	1	4	3.58	0.62	4.00	-1.40	1.79
I used public transport instead of the car	1	4	3.35	0.69	3.00	-0.77	0.08
Visiting national parks or state parks	0	1	0.75	0.44	1.00	-1.14	-0.71
Visiting wildlife parks, zoos or aquariums	0	1	0.68	0.47	1.00	-0.79	-1.38
Visiting botanical or other public gardens	0	1	0.67	0.47	1.00	-0.72	-1.49
Visiting natural museums	0	1	0.60	0.49	1.00	-0.42	-1.83
Walking in natural area (i.e., hiking, walking in the forest, bush walking)	0	1	0.55	0.50	1.00	-0.20	-1.96
Participating outdoor adventure activities (i.e., skiing, sky diving, scuba diving)	0	1	0.24	0.43	.00	1.21	-0.53
Participating natural sightseeing activities (i.e., helicopter tour, 4WD tour, Segway tour)	0	1	0.36	0.48	.00	0.59	-1.66
Watching marine animals (i.e. whales, dolphins, turtles)	0	1	0.59	0.49	1.00	-0.37	-1.87
Visiting natural areas (i.e. resort, island, nature protection area)	0	1	0.79	0.41	1.00	-1.44	0.09
Taking pictures of natural scenery	0	1	0.86	0.35	1.00	-2.08	2.34
SDB total	1	14	8.57	2.89	9.00	-0.23	-0.67

Appendix 18: Measurement of pro-environmental behaviours

Author (Year)	No. items	Sample items	Scale	Research context
Blok, Wesselink, Studynka, and Kemp (2015)	20-item scale with six dimensions	"How often do you wear more clothes instead of putting the heating on?" "How often do you print double-sided?"	5-point Likert scale ("1 = never", "2 = rarely", "3 = sometimes", "4 = often", "5 = always")	Workplace
Dolnicar (2010)	15-item scale	"I saved water" "I picked up litter that was not my own"	4-point rating scale ("1 = never", "2 = rarely", "3 = sometimes", 4 = "always")	Travel
Hong (2006)	10-item scale	"How often do you recycle waste?" "How often do you reuse plastic bags?"	3-point rating scale ("0 = never", "1 = sometimes", "2 = usually")	Daily life
Markle (2013)	19-item scale with four dimensions.	"How often do you turn off the lights when leaving a room?" "How often do you talk to others about their environmental behaviours"	5-point rating scale ("1 = never", "2 = rarely", "3 = sometimes", "4 = usually", "5 = always");	Daily life
Miller et al. (2015)	9-item scale with three dimensions	"I recycle paper products" "I use public transport where possible"	5-point rating scale ("1 = rarely", "5 = usually")	Daily life and travel
Miao and Wei (2013)	20-item scale with four dimensions	"How often do you switch off the light whenever leaving the room?" "How often do you look for ways to recuse things?"	7-point rating scale ("1 = never", "7 = always")	Daily life and travel
Thøgersen and Ölander (2003)	17-item scale with five dimensions	"Do you take the bus or train to work?" "Do you turn off all lights when you leave a room (as last person)?"	5-point rating scale (1 = never", "2 = rarely", "3 = half the time", "4 = often", "5 = always")	Daily life
Whitmarsh and O'Neill (2010)	17-item scale	"How often do you turn off lights you're not using?" "How often do you share a car journey with someone else?"	4-point rating scale ("0 = never", "1 = occasionally", "2 = often", "3 = always")	Daily life

Appendix 19: Comparison of value dimensions for all studies

Value Factor	*Value item*	*Internal consistency of the factor*
Pilot Study (n=165)		
Down-to-earth	Planning, Down-to-earth, Sense of obligation, Stability and security, Being considerate of others	0.83
Enjoyment	Leisure, Liberation, Indulgence, Live in the moment, Fashion	0.81
Complacency	Non-competitiveness, Complacency, Conformity, Easy and comfortable, Compromise	0.74
Self-cultivation	Knowledge and education, Self-discipline, Harmony, Industry (working hard)	0.78
Self-interest	Self-interests, Ostentation, Fame and fortune	0.77
Moral discipline	Courtesy and morality, Kindness, Respect for history, Honesty	0.69
Onsite Study (n=505)		
Self-cultivation	Self-discipline, Industry (working hard), Down-to-earth, Sense of obligation, Planning, Being considerate of others, Harmony, Knowledge and education, Stability and security	0.88
Complacency	Complacency, Compromise, Conformity, Non-competitiveness	0.75
Enjoyment	Indulgence, Fashion, Liberation, Leisure	0.79
Self-interest	Fame and fortune, Self-interest, Ostentation	0.84
Moral discipline	Kindness, Honesty, Respect for history	0.60
Online Study (n=809)		
Self-cultivation	Honesty, Sense of obligation, Down-to-earth, Self-discipline, Industry (working hard), Harmony, Knowledge and education, Courtesy and morality, Planning, Kindness, Being considerate of others	0.90
Complacency	Complacency, Non-competitiveness, Compromise, Conformity	0.81
Enjoyment	Indulgence, Liberation, Fashion, Leisure	0.74
Self-interest	Fame and fortune, Ostentation, Self-interest	0.79

Appendix 20: Ethical Approval and Gatekeeper Approval

Date: 23/03/2016

To: **Jie Ren**
From: Dr. Tyler G. Okimoto, Chair UQBS Ethical Review Committee

RE: Your application for ethical clearance:
"The influence of Chinese cultural values and environmental attitudes on behaviours in nature-based tourism contexts" (#126468)

Dear Jie,

I am writing to inform you that the UQBS Ethical Review Committee has received your revised application. Given the changes and greater clarification provided, the committee has **approved** your application for ethical clearance.

Note that approval is contingent on gatekeeper consent. Samples where gatekeeper consent has already been supplied to the committee are approved. However, where gatekeeper access has not yet been granted (when required), approval is only conditional – data may not be collected until a signed gatekeeper letter(s) has been received. Once the gatekeeper letter(s) has been obtained, you may proceed with data collection. Please also forward a copy of the signed letter(s) to the Ethical Review Committee for our records (v.balson@business.uq.edu.au).

Approval is subject to the conditions listed on the additional notes document (attached) – please retain both of these documents for your records. Although not yet a formal requirement of the UQBS ethics process, we strongly encourage you to review your data management plan with your supervisor (see attached checklist). If changes to the approved study protocol are required for any reason, please submit a written letter of ethical clearance amendment to the committee detailing all required changes and any implied ethical considerations (submit to Vivienne Balson, v.balson@business.uq.edu.au).addressing these issues.

Regards,

Dr. Tyler G. Okimoto
Chair, UQBS Ethical Review Committee

Dr. Tyler G. Okimoto (BA, MA, PhD)
Chair, UQBS Ethical Review Committee
UQ Business School
The University of Queensland
Brisbane, QLD, 4072, Australia

Phone: (+61 7) 3346 8043
Email: t.okimoto@business.uq.edu.au

business.uq.edu.au
CRICOS Provider Number 00025B

TANGALOOMA
Island Resort

TANGALOOMA PTY. LTD.
Cnr. Kingsford Smith Drive & Harvey Street
PO Box 1102, Eagle Farm, Qld. 4009 Australia
A.B.N. 30 010 997 707

	PHONE	FAX
Mainland Office	61 7 3637 2000	61 7 3268 6299
Moreton Island Resort	61 7 3410 6000	61 7 3408 2232

01/02/2016

To Whom It May Concern:

JIE (Olivia) REN has requested permission to collect research data from Tangalooma Island Resort through a project entitled "The Influence of Chinese Cultural Values and Environmental Attitudes on Behaviours in a Nature-based Tourism Context". I have been informed of the purpose of the study and the nature of the research procedures. I have also been given an opportunity to ask questions of the research.

As a representative of Tangalooma Island Resort, I am authorised to grant permission to have the researcher recruit research participants from Tangalooma Island Resort. In kind support, including incentives for the participants (i.e., small dolphin toys), accommodation discount (if available) and transport for JIE (Olivia) REN (i.e., return ferry tickets) will be offered by Tangalooma Island Resort.

Should you have any questions please do not hesitate to contact me on 07 3637 2000

Sincerely,

Vera (Qin) Zhou
Sales and Marketing Manager – China



www.tangalooma.com